



RECORD

K3515

F. R. Fosberg

Collection number book

No. 19037 - 19843

If found please return

to F. R. Fosberg

404 Edificio Lampas Brush

1078 Ave. Jimenez de Guzman

Bogotá, Colombia

or R.F.D. #1, Holmes Run Rd.

Falls Church, Virginia, U.S.A.

Collection and Field Note Book

No. 8

(October 28, 1942 - Jan. 25, 1943)

(19037 -- 19843)

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Falls Church, Virginia, U.S.A.

Palma Church, Virginia, U.S.A.

John ... L.

F. R. Fosberg

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Oct. 28, 1942

Finca La Felicidad, near
Antigua, Guatemala

A small coffee plantation, ^{na} with 3 trees of Cinchona pubescens (succumbra) about 40 years old. These trees had young buds, more ^{2d} mature buds, flowers, & very young fruits, partly grown and almost full-grown fruits and old dehiscent capsules. The bark was gray and checked into squares, these obvious on branches even as small as 1 cm. ^{1/2} thick, and on the main trunk 2-3 cm. across. The bark ^{line} was at least 1 cm. thick, the cut parts turning ^{wee} reddish brown very rapidly on exposure to air. Color when fresh pinkish-straw-color. Leaves glossy above, much like those of Morinda citrifolia.

The coffee was bearing very heavily, the fruits full-sized but only a very few changing color yet. The trees were shaded by ~~the~~ large Grevillea robusta

trees called "gravilla".

The young plants in the seed beds, about 1-2 years old about 1 ft. tall shaded by flat frames made of corn-stalks laid close together and supported on stakes about as tall or a little taller than the tallest plants.

Coffee is a very important crop here. The coffee served at the hotels, good Guatemalan coffee, is

19037

Cinchona pubescens Vahl
planted in coffee plantation

Oct. 28, 1942

Finca La Capitia, 10 km. W. of Antigua, Guatemala.

Another coffee plantation said to have some *Cinchona* trees. We did not find them.

19038

Drymaria
disturbed ground, open,
near edge of coffee plantings.

good enough to be drunk black with no cream or sugar.

The corollas of the *Cinchona* have the sutures ~~between the lobes~~ ^{below the sinuses} very obvious in the part of the tube above the attachment of the stamens. In old corollas this is even more marked, the parts even tending to separate.

tree 12 m. tall, ^{trunk} 3-4 dm. thick, leaves glossy above, flowers with tube and lobes rose-pink outside, whitish within, hairs on ~~the~~ margins of recurved lobes white. odor sweet but not strong. Leaves extremely bitter.

Here the coffee was shaded by the other tree commonly used for this purpose, the *Chalum Inga* sp.

spreading to somewhat ascending. fls. whitish.

1942

Guatemala

Oct. 29, 1942

Finca Las Charcas, near
Guatemala City,
Guatemala.

A large diversified
plantation run by
Sr. y Sra. Rafael Pinol (Haitians)

These people are trying
a great number of different
crops, mostly on a rather
extensive experimental
basis.

They have 50 or more
species of Eucalyptus
growing in an experimental
plot, many of them large
~~at~~ trees. Some have
produced a remarkable
growth in 12 years -
I would guess 75 ft. Four
or five species are grown
in quantities large
enough for commercial
utilization as oil sources.
Time was not available
for careful checking of
what these species were
or collecting of specimens.

Pimenta racemosa
was also produced. To
what extent I did not
ascertain.

A large number of

trees of Cinnamomum
camposa were growing,
many ready for production.

Manufacturing apparatus
for extraction of the oil had
been designed and built
by the owners.

A considerable planting
of young Cinchona trees
was doing well. These
were growing in an open
dry sunny field, black
friable well pulverized
soil. Each plant was
surrounded by a shallow
furrow. The weeds were
turned under in the center
of the space between the
rows, making a low
ridge of soil. The
plants, 2 and 4 years
old, about 1 and 2 m.
tall, respectively, bushy,
much branched, were
in full bloom, heavily
loaded with flowers
and young fruit. The
extremely sunny
situation may have
had something to do
with the early abundant
flowering. The plants
were from seeds said to
have been imported from

java. They were extremely variable in leaf shape, lustre and pubescence. The narrow leaved ones had a dull upper surface while the broad and medium ones were shiny. The broad leaved ones varied from glabrous to shortly velutinous. Corolla tube length also varied from less than 1 cm. to 2 cm., color from deep pink to white. The broad leaved plants had ample inflorescences, while the narrow "Ledgeriana" type had very small thyrses.

In the seed beds the plants were allowed to reach a height of 3-5 dm. before transplanting, and some were in flower already.

Seed production was already in operation, and Mrs. Pinol said they were going to attempt selection of good seed strains.

Several interesting nursery practices were in evidence. A split flower-pot, made in the pottery works right on the finca, was used for young plants to be set

out. The two halves were bound together with cords, and when the transplanting was done, the cords were loosened and the root-system and soil could be removed intact.

Experimentation was being carried on with use of the hollow ~~pot~~ bamboo-like joints of the stem of a tree-dahlia, *Dahlia* sp. for pots. These are up to 5-6 cm. in diameter and 1-2 dm. long, cut with the node at the bottom. When the seedling grown in the section was ready to transplant the whole pot was set in the ground. Within 3 months the pot had rotted away, adding humus to the ground. The dahlia is a native species growing right on the finca.

45 Oct. 30, 1942 Barranca just north
of Guatemala City

Guatemala
Flat top of erosion remnant
between two arms of barranca.
rather dry fine soil, open
grassy meadow surrounded
by oak trees on edges of cliffs.

19039 Boneria

common in weedy spots

40 Lithospermum

scattered in ~~the~~ grassy places

41 Polygala

shaded spot among shrubs

42 Polygala

open weedy place

43

among shrubs and tall ~~herbs~~ herbs

44

shaded place

45 Aplatismenus

shaded place

46 Salvia

among shrubs

47 Hydrocotyle

shaded under oaks on edge
of barranca.

48

shaded under oaks on edge
of barranca

49 Quercus

abundant on edges and walls
of barranca, one of principal components
of vegetation.

A conspicuous feature ~~was~~
was corn planted on all except
the truly vertical walls
of the barranca. Some of
the fields could not have
been more than 10°-15° from vertical.
A native said they produced
3 crops a year.

flowers white.

flowers white

flowers purple.

flowers deep violet

~~the~~ corolla blue-lavender,
herbage aromatic.

weakly ascending or
reclining

Aromatic herb 2 m. tall,
corolla deep ~~crimson~~ purple
inflorescences erect.

creeping, flowers greenish,
petals pale, fruits geminate,
spherical.

tree 6 m. tall, sterile,
now seen with fruit.

- 19050 *Carex*
fairly common in open places
- 51 *Quercus*
abundant on edges and walls
of barranca, one of principal
components of vegetation.
- 52
shade of oaks on edge of
barranca.
- 53 *Bouvardia*
occasional shade of oaks, on edge of barranca
- 54 *Crucella*
common in bushy or wooded
spots.

steep walls of barranca

- 55
open place on cliff

- 56 *Borreria*
in trail
- 57 *Cattleya* ~~lutea~~
common on cliff

- 58 *Borreria*
in trail on cliff

- 59 *Cuphea*
under trees on cliff

tufts, culms somewhat
spreading.

tree 2 m. tall, upper
leaf surface dark green,
lower ~~leaf~~ glaucous

shrub 1 m. tall, stems
green, fruit reddish.
corollas vermillion,
basal 3 mm. of tube hirsute
within.

spreading herb, flowers
violet, paler in sun
than in shade.

spreading shrub, several
meters long, branchlets
tending to be in one plane, but
not always so, flower
spikes ~~erect~~ pendent.
corollas white.

flower brilliant magenta,
sepals paler, tip emarginate,
plants varying with exposure
or shade, up to ~~1~~ 1.5 m. tall,
stiff, leaves stiff.
corollas white

suffrutescent, sprawling,
up to 1 m. long, branches erect,
upper petals erect, deep maroon,
caducous, lower 3 scarlet, tiny, calyx tube scarlet.

19060 *Centaurium*

shaded ledge on cliff.

L. 61 *Lobelia Diastema micrantha* (HBK) McV.
shaded ledge on cliff det. McV.Oct. 31, 1942 the airport at
San Salvador, El Salvador62 *Drymaria*

weed in recently cultivated garden.

Nov. 8, 1942 Montserrat, above
Bogotá, Cundinamarca, ColombiaWet brushy vegetation
largely *Eucaceae* and *Melastomaceae*
on mountaintop, somewhat
grazed.63 *Miconia parvifolia* Cogn. det. T. S. Wurdack 1969

around a small hummock, rare

64 ~~*Hebe*~~ *Andinia vaccinium*

an abundant plant in

limb of corolla pink, tube white.

corolla blue-violet, turning
purple with wilting.spreading herb, rooting
at nodes, the deflexed
fruiting pedicels very easily
detached and quite viscid,
adhering ~~to~~ to anything
and carrying the dehiscing
or nearly ripe ovary
with it.

prostrate, flowers white.

shrub 1-2 m tall, flowers
waxy-red, corolla lobes
paler, greenish red. leaves
quite variable in different
individuals. Leaves, ~~and~~
flowers and inflorescence stiff.

19065

Gaultheria cordifolia HBK. (aff.)
occasional

66 *Cestrum*occasional ~~common~~67 *Galium*

inconspicuous in hummocks

68 *Galium hypocarpium*vine-like, climbing in
shrubs, occasional69 *Hypericum mexicanum* var. *platyphyllum*
occasional (gl. Cuatrecasas)70 *Peucephyllum gaultherioides*
occasional71 *Brachyotum strigosum* (L.f.) Triana
common72 *Hedyotis* (*Cryptophyllum*)
common73 *Befaria phylliphaeifolia* Benth.
occasional "9/13"74 *Centropogon lephocampylus* columnar
common (L.f.) D. Don

flowers scarlet, fruit black,
leaves stiff, noticeably
reticulate and sometimes
reddish beneath.

- up to 3 dm. tall, flowers
dark purple outside, pale greenish
within, lobes of corolla patent.
prostrate, moss-like.

- flowers + fruit greenish.
vine-like, climbing
to 1 m. in shrubs, fruits
bright orange, fleshy.

- flowers greenish.
erect, to 2-3 dm., very
viscous, leaves stiff.

- flowers yellow
shrub 0.5 m. tall, flowers
white, fruit bluish tinged.

- erect to 4-5 dm. tall, flowers
pendent, calyx scarlet,
corolla dark purple.

- stiff, erect shrub, to 0.5 m. tall,
leaves white beneath,
corolla 4 lobed, white,
purplish outside, as are buds,
corolla lobes patent and
somewhat recurved toward
apex.

- low shrub, to 2 dm. tall,
bushy, corollas cylindrical,
crimson, leaves white beneath.

- erect shrub 0.3 m. tall (others seen
up to 1 m.), leaves tawny beneath,
corolla orange, lobes dark greenish.

- 19075 *Hypericum brathys* ^{Smith} ~~Smith~~
common
- 76 *Muehlenbeckia tamnifolia* HBK.
occasional
- 77 *Cavendishia cordifolia* (HBK.) Hoer.
occasional
- 78 ~~Eupatorium~~ *Baccharis*
abundant on slopes
- 79 *Miconia ligustrina* (Sw.) T.
abundant, a conspicuous
part of vegetation
- 80 *Baccharis*
in eroded place
- 81 *Echeveria bicolor* (HBK.) Walt.
~~to~~ just back of top of cliff.
~~at edge~~
- 82 ~~Eupatorium~~ *Stevia*
just back of top of cliff
- 83 *Plantago linearis* HBK. var. *agrostophylla* (Dumort.) Pilg.
in small hummock
- 84
common on slopes

- erect shrub, to 3-4 dm. tall,
usually smaller, fls. yellow.
vine, climbing over bushes,
fruit black when ripe, fleshy.
- shrub 1.5 m. tall, leaves
glaucous beneath, bracts
reddish, translucent,
corolla red, ^{to greenish} fruit red when
ripe.
- shrub 2 m. tall, flowers
dirty white.
- shrub 2 m. tall, flowers
and fruit white.
- flowers whitish, shrub
- 2 m. tall, leaves aromatic when broken.
stems branching, spreading
~~leaves~~ thick, leaves
very fleshy, shiny,
easily detached, racemes
ascending, corolla deep
orange outside, yellowish
within, stiff.
- shrub 1.5 m. tall, flowers
white.
- caespitose
- shrubs 2 m. tall, leaves
shiny, paler beneath,
flowers deep magenta,
conspicuous, buds
glutinous.

Nov. 9, 1942 Highway from Bogota to Tunja. Had no time to collect any plants. Much of the trip was through the Sabana, a long level valley. The road follows the river part way, and the foot of the hills part way. Wheat seems to be the principal crop, with potatoes (papas) secondary. The potatoes have purple flowers. There are no forests in the Sabana, nor on the bordering hills. *Eucalyptus globulus* is extensively planted, the bark being used for tanning and the wood for posts.

Near the northeast end of the valley are a great many small coal mines, simple shafts dug into the rolling hills. The coal is low grade. Might be very worth-while as a fossil collecting ground.

Between Villa Plinjon and Tunja ~~is~~ are hills with interesting brushy vegetation and scrubby forest. Much of it has been destroyed by cultivation. The top 2-3 dm. of soil is

amazingly black - almost as though mixed with coal. Wheat, corn, & potatoes seem to do very well. In places they are planted on ~~an~~ amazingly steep slopes. Near Tunja the erosion has proceeded to a serious extent. The sides of the ravine or valley are deeply gullied.

Nov. 10, 1942 - Summit between Belen and Susacón, Boyaca about 11,000 ft.

Occasional habitations even at this altitude. Wheat and potatoes are cultivated. *Eucalyptus globulus* still survives here, though not numerous.

Rodriguez says this is a weakly developed paramo. A large species of *Isopeltia* is abundant and I took several photos. Small bushy *Wernmannia* trees, 2-3 m tall are fairly common.

Rio Mangua

Nov. 11, 1942 Chitaga just above
Bata, 36 km. 15° S. of E. of Pampelona,
Mun. de Toledo, Norte de Santander, 1230 m.
(altimeter reading 3900 ft.)

Got two small samples of
corn seed to send to Anderson.
One was white, the other, yellow.
Got them from a store.

Most of the level or even
reasonably sloping ground
here is in coffee, shaded
by *Inga* sp., a dense, flat
topped tree.

Climbed down to the edge
of the river, where there were
great moss-covered rocks,
with *Peperomia*, *Piper*, *Tradescantia*,
and numerous other plants
growing under the trees.

Collected a giant *Panicum* and
a *Trichomanes*.

- 19035 *Trichomanes hymenoides* Hedw. - det. G. J. G. 1944
on a moss-covered rock near
river, but not at present splashed.
36 ~~*Placium*~~ *Laccaria divaricata*?
several m. above edge of
water on rocky slope.

Thallus like ponds semi
prostrate on rock.

clump of a number of
immense culms, 5-6 m. tall,
bushy toward top.
Local name "chusque"

Nov. 101 - Cleared slope,
 *grown up to bushes, ^{Pteridium}
 and grass - the bushes
 mostly Ericaceae and
 Melastomaceae, the grass
 mostly Melinis minutiflora.
 Toward top a great deal of
 Rynchospora.

altimeter reading 5700 ft.

19087 Melinis minutiflora
 open pasture

88 Weinmannia 6000 ft.

brushy slope. ^{dominant both}
^{in shrub stage and}
^{in forest.}

89 Myrsine (Lepanea)
 brushy slope

90 Coccyprum
 under bushes in grass

6300 ft.

91 brushy slope

92 Gaultheria
 brushy slope

93 Befaria
 brushy slope

94 Pteridium aquilinum
 slope covered with ferns,
 sedges and small bushes

Norte de Santander
 Rio Valagosa drainage,
~~ridge ridge between Rio~~
 P. w of mouth of Rio
 Colorado. Cor. Chucurama
 Mun. de Chitagá,
 Norte de Santander
 35 km s.e. by r. of Pamplona

viscid, with a sweetish
 odor, infl. purplish red.
 [considered one of the best
 forage grasses in Colombia]
 slender shrub 3 m. tall. ^{growing}
 "cascara" used ^{for tanning} ~~for tanning~~ ^{the}
 shrub 2 m. tall, bushy.
 fruit black, flowers whitish,
 stigma fleshy, translucent.
 - flowers + fruits mixed.
 prostrate herb, flowers
 lavender, fruits pyriform,
 fleshy, many seeded, bright
 blue.
 bush 2 m. tall, fls. whitish.
 Very abundant in vegetation.
 bush 2 m. tall, very abundant.
 racemes ~~some~~ somewhat drooping,
 red, fruits black.
 bush 1.5 m. tall, abundant;
 - flowers rose-pink.
 up to 1 m. tall, one of the
 dominant plants.

- 19095 *Gleichenia*
edge of trail on brushy slope.
- 96 *Chaetolepis microphylla* (Benth.) Moq.
in small openings on brushy slope.
- 97 *Borneria* 6500 ft.
grass and fern covered slope
- 98 *Eleocharis coarctata* (Raf.) Benth.
grass + fern covered slope
- 4 99
in grass on ridge
- 19100 *Rhynchospora*
grassy ridge
- 01 *Borneria*
grassy ridge, common

Nov. 14 - Finca Los Alpes, on
Quebrada el Cedro (Los Indios), ~~the~~ affluent
of Rio Valegría, ~~Tracción de Carvajal~~
Norte del Santander ~~at~~

5700 ft

- 02 *Cinchona pubescens* Vahl
wall of ravine in bottom
of valley
- 03 *Helioscarpus popayanensis* HBK.
~~the~~ edge of yard in cultivated
land.
- 04 *Sambucus*
in yard of finca.

81%
C. 0.47.
B. 0.1.

Anal. Bille.

TC 0.4%

Large tree, ^{some of} leaves at top
red, bark whitish, very
bitter. leaves collected are
large shade leaves.
tree 8 m. tall, spreading,
fruit mature "Bales"

small tree, 3 m. tall, flowers
white. "saucos" infusion
of fresh flowers used for
fever or pneumonia in
infants and for liver trouble.
said to be native of country.

2-3 dm. tall.

flowers yellow.

fls. whitish

small loose clumps,
fls. lavender blue (stamens
yellow)

fls. pink

one of dominant plants
near top of ridge. small
clumps.

flowers white.

Bought a number of ears of corn here out of a pile in the man's shed. A considerable number of different looking forms were evident. ~~There~~ I picked out a fair representation.

#7 Cob 21.5 cm. l., 2.3 cm. thick, cylindric. 10 rows bracts dark purple at base.

#8 Cob 20 cm. long, 2 cm. in diam. cylindric. bracts white. 8 rows.

Nov. 15

~~The~~ Rio Colorado, just above ~~the~~ confluence with Rio Valeria, ~~Alonso~~ Chucarima, Norte de Santander

alt. reading 5300 ft.

mosay log in woods along small creek.

Carvajal
Chucarima #1 Cob 19 cm. long, 3 cm. thick. bracts tinged with purple. 14 rows of kernels

#2 Cob 19 cm. long, 3.5 cm. thick at base. bracts white 11 rows.

#3 Cob 15 cm. long, 4 cm. thick at base. tapering. 12 rows. bracts white

#4 Cob 15.5 cm. long, 3.5 cm. thick at base, tapering. 17 rows at base, irregularly spiral. bracts white

#5 Cob 20 cm. long, 3.5 cm. thick, only slightly tapering. bracts slightly tinged with pink. 14 rows.

#6 Cob 20 cm. long 4 cm. thick at base tapering. 16 rows. bracts very slightly pinkish

creeping

Norte de
Santander

19105

Nov. 15

slope is of lower part of
Rio Colorado just above ~~its~~ confluence
with Rio Valera, Cor. Chuscarima, Mun. de
Chitaga, Norte de Santander, Alt. reading 6000 ft.

~~Thick woods~~ partly cleared slope

19106

Hedyosmum

Thick woods along ravine

07 Juncus

wet place in trail

08 Eleocharis

wet place in trail

09 Xyris

swampy place in clearing

10 Utricularia

wet mud & wet white sand
in clearing

11 Lymbolanthus

edge of thick woods

12 Utricularia

among brush in clearing,
not especially damp!

13

on mossy tree trunks

14

edge of wooded ravine

15

edge of wooded ravine
abundant.

Tree 6 m. tall, nodes
much enlarged, fruit
very fleshy, white, achenes
in pits.
tufts.

spreading tufts.

tufts, flowers yellow.

leaves lance-linear,
flowers yellow.

shrub 2 m. tall, fruit
with a strong apple odor.

leaves peltate, flowers
lavender.

prostrate

tree 6 m. tall, fruit green.

small tree, 8 m. tall, fls.
reddish.

19112 a Trichomanes

- 19116 *Ladenbergia*
in densely wooded ravine,
fairly abundant.

26 Nov. 15

E. slope of valley of quebrada
el Cedro (Los Indios), toward
head, Finca de Carvajal, Mun. de Chitaga,
Norte de Santander A.R. 8000 ft.

Thick jungle
Ladenbergia

19117

19118

- 19 ~~*Polypodium*~~ ^{slope} *Polypodium* (*Xiphopteris*) *truncicola* (Klotzsch)
det. D.B. Lellinger 2/5/69

near top of 15 m. tree (19118)

20 *Polypodium*

near top of 15 m. tree (19118)

21 *Cinchona*

22 *Palicourea*

23 *Palicourea*

34

Nov. 14 - Hills E. of Rio Valegrá E. of
Quebrada Valegrá, ^{com.} ~~Barrio~~ Chucanuma,
Mun. de Chitaga, Norte de Santander

Tall forest being felled, gently
sloping ground. about 6500 ft.

24

25

Anal. Bellis

T.C. 0%

~~Tree~~ Spreading tree about
15 m. tall, wood very
hard and strong, flowers
white, fragrant. Leaves
dark green, very revolute.

fruit immature
tree 15 m. tall, with an
oily odor when broken.

pendent.

small tree 7 m. tall.

"quina blanca" or "quina tunda"

bark rather thin, white inside.
scandent shrub 2-4 m.

tall, resting on trees. fls.

greenish, fruit blue.

Tree 10 m. tall, fls. yellowish
green, fruit immature.

small tree.
shrub

19126

27 *Hippotis albiflora* Karst.28 *L. ...*

29

30

31 *Aphelandra*32 *Stromanthe tonkeat* (Aubl.) Eichl.

33

open bluff. burned some time
before.Nov. 16 same but below quebrada
Valequia.Ravine on high open rocky
summit34 *Cinchona pubescens* Vahl35 *Ladenbergia*

In deep wooded wet ravine

Nov. 16 Hills above Bata, Valley
of Rio36 *Palicourea*

partly wooded ridge

5500 ft.

g.c. 0.98
c. 0.68
g. 0.5

Anal. Bellis

TC. 1.5%

small tree, flowers yellowish
green, fruit immaturesmall tree, corolla
whitesmall tree, flowers green,
fruit immature

vine, fruit immature

shrub, flowers bright
purpleshrub 2-3 m. tall, flowers
scarlet, bracts reddish

green

shrub with enlarged nodes,
fruit fleshy, orangeherb 1 m. long, weak,
flowers scarletstump sprouts 4-5 m. tall,
7-9 cm. thick, from old felled
tree, some leaves red, flowers
pink, fragrantslender tree about 7 m. tall,
flowers whiteshrub 3-4 m. tall, thyrse
red, fls. yellow

10 Nov. 16 Bata. Mun. de Toledo,
Rio Norte de Santander

4000 ft.

Ravines above river

19137

steep slope

38 *Jussiaea peruviana* L.

wet place

39 *Jussiaea suffruticosa* L.

wet place

Rio Valegría, bluff below

Nov. 18 ~~just below~~ mouth of quebrada
Guemada, Fracción Cornejo de
Mun. Chitaga, 40 km. s.s.e. Pamplona,
Norte de Santander

6400 ft.

steep grazed hillside

40 *Ranunculus*
common

Nov. 18 Rio Valegría, just above
mouth of quebrada Guemada,
Fracción Carvajal de Mun. de
Chitaga, 40 km. s.s.e. Pamplona,
Norte de Santander

6400 ft.

dry brushy ~~bluffs~~ bluff
above the river

41 *Castilleja*
occasional

42 *Tournefortia*
~~grazed~~ bench

"flora de San Andrés"

shrub 3 m. tall, flowers
magenta, anthers deciduous.
~~shrub~~ subshrub, up to 1.5 m.
tall, flowers yellow
herb up to 1 m. tall, flowers
yellow.

fls. bright yellow

bracts red, flowers yellow
herb up to 1 m. long, weak.
spreading tree 6-8 m. tall;
to "quesito", the tasteless
fleshy white fruits eaten
leaves of water sprout
much larger, ternate.

- 31 Nov. 13 - very steep slopes on
w. end of Preciosas, Rio Valegría,
above mouth of quebrada Quemado,
Fracción de Carvajal de Muñ. de
Chitagá, 40 km. s. o. e. Pamplona,
Norte de Santander 7750-8200 ft.
moist, somewhat decadent
forest on very steep rocky
slope. openings filled with
dense brakes of *Chusquea* (?) sp.

19143

44 *Begonia*45 *Polypodium*

on log

46 *Cephaelis axillaris*
in open understory,47 *Palicourea*48 *Cinchona pubescens* Vahl
shade49 *Cinchona pubescens* Vahl
edge of opening

anal. Ballis.

limb g+c 0.5%
ci 1.4%
gui trlimb g+c 1.1%
ci 0.9%
gui 0.1%limb TC 2.1%
Trunk TC 1.9%, 2.1%

50

climbing on *Cinchona pubescens*51 *Cinchona officinalis*

on tree

qa 0.5
cd 0.1g+c 6.6%
(2504 7.7%)
ci 1.6%
gui tr.anal. Ballis.
T.C. 8.2%
no g.
mostly c.

All of the slopes that
are gentle enough (70° or less,
to hold any soil are cleared.
forests persist on the cliffs
and in extremely steep
headwaters of small
quebradas. In these in
this vicinity, there seems
to be much *Cinchona*. Two
(over)

fl. greenish yellow,
pseudobulbs terete
woody vine, flowers
white, said to be used
to treat pneumonia.

shrub ~~1-2 m.~~ 1-2 m. tall,
stem green, fls. white,
fruits blue
small tree, flowers yellow,
waxy.

seedling or sprout,
leaves + stipules very large,
stipules recurved.

Tree 15 m. tall, fls. pink,
some leaves pink. Some
inflorescences very large.
(bark sample, both from trunk
and branches.) "Guina tuna"
vine fls. white.

tree sterile, leaves green
or very sl. reddish on veins. "Guina blanca"
(bark sample)

kinds as all the quineros here know about and all that we saw. The "quina blanca" here is the same as that on quebrada de Cedro. The "quina tuna" here is practically the same as the "quina amarilla" of Qu. de Cedro. The only noticeable difference is that this one has recurved stipules. The trees observed here are quite uniform. At 7750-8000 ft. the "quina tuna" is quite abundant, scattered all through the forest. Seedlings and

6
10 km. above
Chitaga

Nov. 17, - Samaria, on Rio Chitaga
at mouth of quebrada Samaria, Mun.
de Chitaga, 34 km. s. of Pamplona,
Norte de Santander 8500 ft.
19152 *Nertera granadensis* (L.f.) Druce
mossy bank a few m. above stream.

26

Nov. 19 Bosque de
Aguadas, ^{fraction} Cornejo de Mun.
Chitaga, 36 km. s. of Pamplona,
Santander del Norte 8500 ft.
53 *Cinchona officinalis* L.
moist woods

ci 2.3%
qui 2

Anal. Bellier

g + c 3.3%

T.C. 5.6%

sprouts are abundant. The leaves of these are larger, but the stipules are reflexed.

Pieces of branch on the ground send up sprouts as do the barked stumps. A ~~barked~~ barked log showed areas of green, as though ~~sprouts~~ metabolism was still going on where areas of cambium remain. A couple of tons of bark have been taken out two months ago.

creeping, fls. pale green, both 4 & 5
merous on same plant, fruit
slightly subglobose, soft, scarlet,
more so above, with a slightly
mottled appearance. Corolla lobes recurved.

From stump sprouts. (Brought
in by guide) (Bark sample)
Leaves clear green, except on some
twigs the petiole & lower midrib red.

1944

55

~~growing in wet~~
Palicourea
 moist woods

56

~~moist woods~~

56

Ladenbergia
 moist wood

57

Cephaelis axillaris
 moist wood

14

Nov. 19 - ~~high brushy ridge~~ Ridge n.
 of Quebrado Quemada, Tracción
 Cornejo de Mun. de Chitaga,
³⁶ km. e. of a. of Pampalona, Norte de
 Santander 9500 ft.

high brushy ridge

58

Pernettya prostrata var. *perthensis* (Dr. Hillebr.)

59

Paepalanthus schlimmii Koenig

60

Nertera granadensis
 on ground under bushes

61

Hedyotis

tree 15 dm tall, fls. whitish

shrub 2 m. tall, fruit
 green.

~~shrub 2 m. tall, fruit green.~~
~~shrub 2 m. tall, fruit green.~~

tree 15 m tall, fls. white,
 very fragrant, fruit both
 green and dehiscent.

shrub with green stems
 white flowers.

dwarf shrub 2-3 m tall,
 fls. white, fruit black,
 fleshy, said to be inedible.

~~acauliscent to stem~~
 up to 3 dm. long.

prostrate, forming a mat,
 berries coral, translucent,

subglobose.

shrub up to 1 m tall, fls. white.

15

Nov. 19 - Cordillera de Hoya grande
head of Quebrada Guemada,

Monte de Santander

11000 ft.

high rocky summit ridge.

19162

Vaccinium

crevices and ledges,

63 *Hedyotis*

open ridge

64 *Oxalis*

crevices

65 *Alechnum*

just below crest.

66 *Calceolaria minobefaria* Kraenzl. subsp. *minobefaria* det T. J. G. 1982
ledges below crest

67 *Castilleja*

ledges below crest.

68 *Hedyotis*

open windswept slope

5

Nov 19 - ^{at mouth of quebrada Larnaria,} Samaria, valley of
Rio Chitaga 10 km. above Chitaga.
Mun. de Chitaga, 24 km. s. of Pampora
Monte de Santander
roadside

7500 ft.

69

forming a dense mat, fls.
red.

shrub 5 dm. tall, fls.
white.

fls. reddish yellow

diminutive tree fern, with
trunk up to 1.5 m. tall. Has
appearance of *Lyceas*
evoluta.

flowers sulfur yellow,
lower lip inflated.

calyx red with yellow
edg.

prostrate, forming a mat that
clings very close to the ground,
fls. white, turning purplish.
(quite distinct in appearance
from the looser similar
plant that is common in
the region.)

tall, semiscandent shrub,
involucres dark purple, fls. white
branches with long spines, large covered

49170

Climbing in tree by roadside

70

Nov. 19, 1942 quebrada Llanos,
Mun. de Chitaga
Norte de Santander

9300 - 9500 ft.

Open gentle slope, somewhat
over-grazed, vying water
here and there, white sand
with some humus.

71 *Lobelia tenera*72 *Xyris*

73

clump of bushes and trees

74 *Eurocaulon*75 *Gaultheria*76 *Halenia*
(abundant)77 *Hypericum*

78

edge of clump of trees

scandent shrub, fls.
bright red.

fls. purple with greenish white
center, varying in intensity
of color. Rare here, commoner
on other side of mountain
at ^{about} same alt. Not seen
except in white sand.

in dense grass tussocks
small tree 5 m. tall, leaves
stiff, fruit yellow, oil of
seed ~~red~~ scarlet.

small group of rosettes,
underground stems
branching. Peduncle flat
dwarf shrub 3 dm. tall
berries white with a strong
purple tinge.
flowers cream white & greenish

shrub up to 7 dm. tall, fls. yellow
short vine 1 m. long, leaves
glaucous beneath, flowers
vermillion

19179 *Senecio*

same loc.

rocky crest of small ridge 9800 ft.

80

81 *Alchemilla*82 *Viola*

83

abundant in open places from
8500 to 11000 ft.

84

Lycopodium

85

86

Bartsia

10300 - 10500 ft.

rocky ledge on ridge

87

Blechnum

rocky ledge on ridge, common

88

Asplenium

rocky ledge on ridge

89

*Hedyotis*on small tussocks in open springy
placelowest altitude observed,
much more abundant
higher up. Shrub up to
1 m tall, leaves terete with
a resinous odor when broken,
fls. yellow.

erect, rays white, disk yellowish

prostrate
prostrate, mat-forming, ~~fls.~~
flowers white with purple
markings on lower petal.
distogamous flowers down
in mat.densely pulvinate, length
of peduncle varies in different
colonies.creeping, fruiting branches
and secondary vegetative
branches erect.
pulvinate

stems & fls. purplish.

bracts erect, stiff.

erect shrub .5 m tall, fruiting.

forming a loose mat, the ~~erect~~
leaves on the erect secondary
stems conspicuously decussate.
fls. purplish.

19190 *Miconia*
scattered brush on slope

91 *Gentiana*
muddy pasture

92
low rocks sticking up in muddy
springy pasture

10500-10800 ft.

93 *Gaultheria*
small patch of woods in
shallow ravine.

94
bushy pasture

95 *Vaccinium*
small patch of woods in
shallow ravine

96 *Hedyotis*
open grazed hillside, abundant
throughout region at altitudes
over 4000 ft.

97 *Castilleja*
somewhat bushy hillside

98 *Cestrum*
somewhat bushy hillside

99
~~at~~ somewhat bushy slope,
around rocks.

19100 *Polypodium* *Campyloneurum* Fée det. M. Meyer 1964
hanging from isolated tree

box-like,
dense, rounded bush 2 m. tall,
flowers white.
flowers pale purplish.

flowers white inside,
pinkish outside.

tree 5 m. tall, fls. white

shrub 1 m. tall, 3 heads
white, herbage very
resinous - aromatic when broken.

shrub 1.5 m. tall, flowers
scarlet, waxy,
prostrate, forming loose
mats, leaves decussate,
flowers white or somewhat
purplish, especially outside.
calyx scarlet, slightly
edged with yellow, galea
red below, green above.

small shrub 0.4 m. tall
fruits black, fleshy, fls.
dark purple outside, green within.
mat-forming, petals
white, not cleft. styles 3

shrigone glaucous-green

19201

Hypericum

somewhat brushy slope

79

Nov. 29 - Vitelma,
 San Cristobal, just s. of Bogotá,
 Cundinamarca 9000 ft.
 gently sloping
 small paramo with brushy
 ravines. *Espelletia grandiflora*
 and *E. corymbosa* abundant

3 E. helmsii
 R. E. Helms
 (sister of daughter
 to him)

02

Hedyotis

common

03

side of ravine

04

rocky ledges among brush on
side of ravine

05

Eupatorium

common

06

brushy side of ravine

07

Gaultheria

rare

08

Bartsia

one small colony

09

Castilleja

scattered

n. of Sant. - Cundinamarca

shrub 1.5 m. tall (others
 observed to form trees 3-11 m.
 tall), flowers bright
 yellow, leaves decussate.

shrub up to 1 m. tall, leaves
 stiff, white beneath,
 flowers white, lobes
 purplish outside toward tip
 shrub 2 m. tall, fruits
 blackish.

imbricate bracts ^{rose} purple, sepals
 and petals yellow, lip
 whitish or pinkish with
 a ~~large~~ maroon spot in
 the center below.

depressed shrub, scapes
 erect, fls. lavender.
 shrub 2 m. tall, fls. yellow

depressed shrub, inflorescences
 and fls. red.

plant purplish, esp. the inflorescences
 & calyx, corolla yellowish green.
 bracts scarlet distally, calyx
 scarlet, corolla green with
 red edging toward tip.

- 19200 *Nertera granadensis* (L. f.) - rare
one small cushion in open place
- " 11 open slope, scattered bushes
- " 13 *Graphalium*
large colony on eroded place
- " 13 *Hypericum*
occasional and localized
- " 14 *Vaccinium*
common
- " 15 *Anagoe*
rare
- " 16 rare
- " 17 *Paepalanthus*
common
- " 18 *Lycopodium*
common
- " 19 *Lycopodium*
common
- " 20 *Hypericum*
scattered

Nov 30 - Magdalena Valley,
Giradot to Neiva, Tolima and Huila.

Flat warm country with
thorn forest alternating with
pastures, apparently rather
dry except in low spots near
the river. Arborecent *Cereus* sap.

flowers green

shrub 1.5 m. tall, flowers
whitish, leaves sticky
aromatic, slightly woody
and decumbent at base,
heads yellowish.
flowers yellow

shrub 1 m. tall, corolla
^{palatidally} red, waxy, fruit immature
shrub 1.5 m. tall, flowers
white

dwarf shrub, flowers
purple.

cushionlike clumps, flowers
white, peduncles somewhat
flattened.

branchlets compressed,
spikes erect, cylindric.
plant trailing up to ~~1 m.~~
1 m. long. branches & spikes
erect.

erect, flowers yellow

~~at~~ common, thorny legumes
abundant. Croton abundant,
especially in overgrazed areas.
Some of dry low hills badly
over-grazed and eroded.

River very muddy.

Population rather sparse
in many places.

- Dec. 2 - Neiva, bank of
Rio Magdalena, Huila
- 19221 *Gossypium*
in garden
- 44 Dec 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva. 4.5 km.
s. of Neiva, Huila 27-28-29
- Brushy river bluff, with
seeps of water.
- 22 *Wigandia*
cut bank above road
- 23 *Oxyptalum cordifolium* (Vent.) Schult.
det J. R. Howell
- 24 *Aspidosperma cuspa* (HBK) St. John & P. R. Allen
det J. R. Howell, 1980
- 25
- 26
- 27
- 28 *Prophyllum nudum*
- 29 *Tournefortia*
- 30

tree 5 m tall, flowers pale
yellow, flowering and fruiting
at same time, (seed sample)

CALIFORNIA ACADEMY OF SCIENCES
Weeds of California

Brachypodium distachyon (L.) Beauv.

Locally common on open grassy
hillside, Tiburon, Marin County.

(See Leaflet, West. Bot. 5: 69, 1981;
Hitchcock Manual, ed. 2, fig. 42.1)

John Thomas Howell

23186

May 21, 1947

Sh. with prickly
very lavender.
lactiferous,
greenish yellow.
white
tall, leaves
rich green,
reen, lobes yellow.
fls. purple-black.
Sh. fls. lavender,
ed with purple,
root white.
tall, stems
red prickles,
fls. purple-black.
malodorous herb up to 1 m.
tall, ~~the~~ involucre purple,
fls. yellowish, leaves
somewhat glaucous.
slender shrub, 1 m. tall,
ripe fruits red, fresh.
vine climbing on shrubs,
petals bright yellow.

Dec. 2 - Neiva, bank of
Rio Magdalena, Huila
19221 *Gossypium*
in garden

44 Dec. 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva. 48 km
s. of Neiva, Huila 2730 ft.

Brushy river bluff, with
seeps of water.

22 *Wigandia*
cut bar

23 *Ory*

24 *Aspidosperma*

25

26

27

28 *Porophylla*

29 *Tournefortia*

30

tree 5 m. tall, flowers pale
yellow, flowering and fruiting
at same time. (seed sample)

shrub 2 m. tall, with prickly
hairs, flowers lavender.

Twining vine, lactiferous,
~~fls.~~ corolla greenish yellow.

corolla bifid, white

shrub 3 m. tall, leaves
pale yellowish green.

corolla tube green, lobes yellow.

shrub 1.5 m., fls. purple-black.

herb 1 m. tall, fls. lavender,
throat dotted with purple.

herb with throat white.

shrub 3 m. tall, stems
with recurved prickles.

fls. purple-black.

malodorous herb up to 1 m.

tall, ~~fls.~~ involucre purple,
fls. yellowish, leaves

somewhat glaucous.

slender shrub 1 m. tall,

~~fls.~~ ripe fruits red, fresh.

vine climbing on shrubs,

petals bright yellow.

- Dec. 2 - Neiva, bank of
Rio Magdalena, Huila
- 19221 *Gossypium*
in garden
- 44 Dec. 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva, 4.8 km.
s. of Neiva, Huila 27-10-42.
Brushy river bluff, with
seeps of water.
- 22 *Wigandia*
cut banks above road
- 23 *Orypetalum cordatum* (Vahl) L. H. C.
det O. A. Ballance.
- 24 *Aspidosperma cuspa* (HBK) SF. Blake & P. H. R.
det. S. G. Smith, 11-85
- 25
- 26
- 27
- 28 *Porophyllum nudum*
- 29 *Tournefortia*
- 30

tree 5 m. tall, flowers pale
yellow, flowering and fruiting
at same time. (seed sample)

- shrub 2 m. tall, with prickly
hairs, flowers lavender.
Twining vine, lactiferous,
~~fls~~ corolla greenish yellow.
- corona bifid, white.
- shrub 3 m. tall, leaves
pale yellowish green.
- corolla tube green, lobes yellow.
- shrub 1.5 m., fls. purple-black.
- herb 1 m. tall, fls. lavender,
throat dotted with purple.
- lip with throat white.
- shrub 3 m. tall, stems
with recurved prickles.
- fls. purple-black.
- malodorous herb up to 1 m.
tall, ~~fls~~ involucre purple,
fls. yellowish, leaves
somewhat glaucous.
- slender shrub 1 m. tall,
- ripe fruits red, fresh.
- vine climbing on shrubs,
petals bright yellow.

19231 *Helaginella*

on moist ground under bushes

32 *Citharexylum*33 *Aneimia*

wet ground under bushes

34 *Petraca*Algeciras (San Juanito), 45 km. s. of
Nliva, Huila

(3400 ft.) 1050 m

35 *Chlorophora tinctoria*
cultivated in yard.gently sloping pasture with
several small streams
and with scattered trees36 *Cyperus*37 *Lapindus*38 *Cupatorium*

rocky stream bank

39

rocky stream bank

prostrate, forming a
thin carpet on earth ledges.
shrub 2 m. tall, ripe fruits
scarlet.shrub 3 m. tall, calyx bright
lavender-purple.~~shrub~~ Tree 10 m. tall, sterile,
branches spiny, leaves
brittle, latex used for
an anesthetic when pulling teeth.
"dinde" (local)heads white, plants in
small tufts
- rounded spreading tree,
flowers white, fruits
yellowish or greenish.
pulp used for soaps, seed
by children for marbles
or to make rosaries.
"Chambimbo" acc. Rodriguez
- "Chambimbo" local.
herb 3-10 dm. tall, fls. white.vine, very lactiferous
stems green, fls. white.

19240 *Paspalum*41 *Cyperus*42 *Cyperus*

43

44 *Cyperus*

sandy places

45 *Panicum*

the common grass in low pastures

46

banks of stream

47

banks of stream

48 *Piper*49 *Verbena officinalis* *littoralis*50 *Ageratum*7 *Altagracia*, ^{alt. above F. Virginia} m. s.47 Dec. 5 - side of valley of Rio
Neiva, about 1 km. above Salado,
40 km. SSE of Neiva Huila

thick forest on slopes

19251 *Cinchona pubescens* Vahl
edge of forest 6600 ft
common in this patch of woods.
10-15 trees in sight at once.52 *Palicourea*
dense forest

6900 ft

erect.

- forming a dense turf, scapes
- small tufts.
- erect

depressed tufts

"makay" acc. Rodriguez

- up to 2 m. tall
shrub up to 2 m. tall,
- fls yellow.
shrub 2 m. tall, staminate
and pistillate flowers on
different branches, the
staminate lower. (Plant
of several stems, possibly
more than one plant involved).
shrub 4 m. tall, spikes
white, arcuate,
used as an antimalarial
locally "Verbena nigra".
- "marrubio" or "yerba
de chivo" used for
stomach trouble.

anal. Dallis

7.1 C 2

Ci 1.2%

Gr 5

TC 1.2%

tree 10 m. or more tall, 2-3 dm. through
leaves reddish esp. midrib
and veins. Bark light pinkish
white, but oxidizing rapidly
to reddish.
shrub 2-3 m. tall, flowers
lavender purple.

19253 *Cinchona*
thick woods, steep slope 1900 ft

54

55 *Cinchona*
in dense *Chusquea* thicket in
ravine

56 *Cinchona*
edge of opening filled with
Chusquea sp. common here,
said to have been planted
70 or 80 years ago.

57 *Cinchona officinalis*
thicket of *Chusquea* sp. on steep
slope.

58 *Phoradendron*
parasitic on # 19257

59 *Cinchona officinalis*
dense but rather decadent
woods. Many trees, especially
this species dying or dead.

Dec. 5 - Rio Neiva, 1200 ft

strip of woods on bluff
above river

60 *Cinchona pubescens*

only tree seen, nearly dead,
only sprouts available.
shrub rather scrambling
in other shrubs 1.5 m. tall,
flowers bright red, forming
a globose mass. Plant with
scanty latex.

seedling 1 m. tall.

near nos. 19256 + 19257, ~~the same~~
identical with them.

Anal. Bellis: tree 10 m. tall, slender,
g + C 1.9% trunk base, 1.5 dm. thick breast high
Ci 0.1% (bark sample) Bark whitish
Qui 0.1% but soon oxidizing to reddish,
T.C. 2.1% very bitter.

Anal. Bellis: same. leaves only at top,
g + C 2.9% leaves with only slight
Ci 0.5% luster, rather stiff, veins
Qui 0.1% not prominent. (bark sample)
T.C. 2.6% forming mass 1 m. in diam.

Anal. Bellis: fruits yellow, stems compressed
small tree, almost dead,
g + C 1.9% bark brittle and very
Ci 0.4% coherent wood. This and
Qui 0.1% # 19256 + # 19257 called "guinea tuna"
T.C. 2.4% locally. Considered the best kind.
Used locally.

Anal. Bellis: small tree 6 m. tall, 1 dm. thick,
not more leaves turning reddish,
than traces much larger tree nearby
of *Cinchona* bark pinkish white
alkaloids.

Dec. 5 - Headwaters of Rio Neiva,
bet. Cerro Neiva and Cerro del Diablo,
Huila 35 km. ESE of Neiva alt. 6700 ft.
19260a *Lycopodium clavatum*
on cut above trail

Cinchona, notes Dec. 5-6.
Altagracias - old plantation of what looks like *C. pitayensis*,
evidently the form of *C. officinalis* common in this region. The
trees are all rather small, the older ones seem diseased
and half dead. The bark of these is rather hard to remove
from the trunks. This is the so called "quina tuna" of this
region, said to be the best bark. One or two trees of another
form, broader leaved and more pubescent were seen, but
partly dead. Only sprouts available. Lower down, in another
patch of forest *C. pubescens* is very abundant. The
trees are larger and in good condition. It would seem
quite feasible to harvest both of these species here.

Vic. of Finca Mercedes
Only the form of *C. officinalis* is mentioned above seen
here, but only one small ridge explored. The trees were
all small, about 1 dm. thru and 10 m. tall, or smaller. They, like
those in Altagracias, have tall bare trunks and bushy
tops. Evidently the tree is small and short lived. Two
species of *Ladenbergia* are here, also called "quina naranja", or, one
sometimes, "calisaya". These are abundant and large trees.
It is likely that we did not see the best Cinchona stands
here, as the valley is corn-pletely surrounded by densely
wooded mountains. If the alkaloid content of the bark is
fairly high, some bark might be produced here.

extensively creeping,
stems brittle. "cochon de pobre"

65- ~~Dec. 6~~ Dec. 6 - Headwaters of
Rio Neiva, between Cerro del Diablo
& Cerro de Neiva, Huila, near
boundary of ~~Cagaita~~ Meta
55 km. ESE of Neiva 7500 - 7700 ft.
Dense tangled forest, openings
filled with Chusquea.

19201 *Ladenbergia*

single tree left in clearing

62 *Vertera*

~~trail~~ cut in clearing, on ^{vertical wall} ~~dark~~

63 *Lycopodium*

wet seepy grassy bank

64 *Palicourea*

wet ravine along stream

65

wet rocks in ravine along stream

66 *Miconia licophora* Wurdack (type, ined. 1931)

wet ravine

67 *Ladenbergia*

slope

68 *Ladenbergia macrocarpa*

slope

69 *Phelodendron*

70 *Trichomanes*

very common on tree trunks

- tree 10 m. tall, 2.5 dm. thick,
- flowers white, fragrant,
- forming dense mat,
- fruits clear translucent coral
- red, darker distally.
- erect.

- shrub 2 m. tall, thyrses
- yellow, corolla white,
- plant purplish red, stem
- fleshy, erect.
- shrub 1.5 m. tall, fl. white.

Anal. Bellis: Tree 20 m. tall, 2.5 dm. thick,
TE m. more
than traces - flowers white, fragrant.
(bark sample)

Anal. Bellis: tree 15 m. tall, leaves with
TE no more
than traces - reddish petioles, fruits
dry and old. (Bark sample)
- spathe and spadix light
green, short stem, probably
becoming vine-like, with
aerial roots.

- rhizome clinging tightly
to tree trunk. "patevaca"

19271 *Ladenbergia macrocarpa*
slopes

72

Chusquea thicket

73

Hedyosmum
ridges

Finca Las Mercedes, 5 km. ESE of Neiva
headwaters of Rio Balsillas,
Dec. 6 - Bet. Cerro del Diablo
& Cerro Neiva, ~~Caguan~~ near
border of Huila. 7200 ft.

Forest interspersed with
openings filled with *Chusquea*.

19274

Cinchona

75

Cinchona

Dec. 7 - Finca Tama, in upper
valley of Rio Balsillas (part of old
Hacienda Balsillas), 7200 ft.

76

Drymaria cordata

in fences around garden and coral

anal. Ballis:
not more than
traces of
Cinchona alkaloids.

tree 15 m. tall, sterile.

(Bark sample)

terrestrial (in decaying
vegetation) flowers greenish
white.

shrub 3 m. tall, very
fragrant, even when
not broken. To "granizo
morada" locally, much
sold in drug stores as
remedy for stomach aches
and fever. Fruit fleshy,
greenish, cone-like. (leaf sample)

A few old stubs of *C. pubescens*
with sprouts still persist
along the trail above Las Mercedes
in cleared area.

anal.
Ballis:

g. + c. 2.1%

c. 0.4%

qui. 2.1%

TC 2.5%

small slender tree ^{10 m. tall, 1 dm. thick} with
bare trunk and bushy
top, leaves glossy above,
with red midrib. Bark
white inside, oxidizing
brown, bitter (Bark sample)

anal. Ballis:

g. + c. 1.3%

c. 0.6%

qui. 2.1%

TC 1.9%

slender tree 10 m. tall, 1 dm. thick,
leaves glossy above. flowers dark
purple. "Quina tuna" said
to be the best in this region
(also # 19274) (Bark sample)

rosette, supported on fence.
fruiting pedicels viscid, easily detached.

7

Dec. 7. - Valley of upper ^{Rio} Balauillas,
bet. Finca Tama and Finca Balauillas.
Cagmeta (in Meta)

7200 m.

Wooded ravine along river

19277

Cinchona pubescens

only two trees seen here.

78

Ficus

solitary trees left after
clearing flat valley floor
for pasture; wet ground.

99

Dec. 7 - Finca Balauillas, hills
above ranch house, upper
Rio Balauillas, 4 km. e. of Neiva
Cagmeta (in Meta)

slopes and bottom of wet
steep densely wooded ravine

7500 ft.

19279

Saravia floccifera Triana

lower edge of forest

80

Chusquea

near bottom of ravine

81

Centropogon

bottom of ravine

82

Gynandropsis

bottom of ravine

83

Caliconia

slope, common

Anal. Bolls

B+C to

Ci 1.4%

Fm to

TC 1.4%

Small tree 6-7 m. tall, older
leaves red, stipules strongly
recurved, flowers pink.
(Bark sample.) fragrant,
hairs on margins of lobes
white.

Great trees 30 m. tall, trunks
white, latex not
especially abundant.
figs red. "caucho"

Small tree 5 m. tall, flowers
white. "dulcamara" fruit eaten.
tough liana forming dense
tangles, only one seen in flower.
vine-like herb, several
m. long, fls salmon color
sprawling shrub several
m. long, branched, flowers
orange, fruit greenish white
shrub 3 m. tall, infl. purple,
corolla blue-purple.

19284 *Cinchona pubescens*
steep side of ravine

19285 *Macaranga*
steep side of ravine

23 Dec 8. mountain directly
across valley of Rio Balsillas
from Finca Abyssinia (about
1.5 km. below Finca Balsillas)
45 km. S.E. of Neiva *Caguita Meta*
7500-8000 ft.

19286 *Peperomia*
Dense rain forest on steep slope.
creeping ^{mossy} on tree trunks. ~~inflourescences~~

87 ~~Polypodium~~
mossy tree trunks

88 *Ladenbergia macrocarpa*

89 *Pilea*
dense shade, on ~~sloping~~ sloping ground

Anal. Ballis
g+c 0.8%
Ca 1.2%
gri T.
TC 2.0%

tree 10 m. tall, sterile, ~~stems~~
older leaves reddish, stipules
small, strongly recurved
(bark sample)

~~shrub~~ shrub with single
stem branched only near top,
3 m. tall, top composed of
decussately arranged
inflorescences, corolla
campanulate, greenish-white.
fruit immature (from a
different plant.)

Although ~~there are~~ the people
say there are scattered "gringos"
trees here, we saw absolutely
no *Cinchona* in a day's climbing.
Much *Ladenbergia macrocarpa*.

prostrate, stems filiform
leaves fleshy, variegated
pendent

anal. Ballis
not not
any traces
of *Cinchona*
alkaloids.

tree 15 m. tall, 1.5 dm. thick,
fruit immature, stipules
calyptrate (bark sample)
stems fleshy, brownish

19790

in small opening filled with *Chusquea*91 *Palicourea*

Finca Abyssinia

Dec. 8 - Valley of upper Rio Balsillas,
(1.5 km. below old Hacienda
Balsillas) 43 km. e.s.e. of Neiva

Meta Caqueta

7000 ft.

Flat plain ^{wet,} formerly wooded
but now cleared, except
for an occasional tree.92 *Cinchona pubescens* Vahl

Anal. Bellis.

g+c 1.2%

Ci 0.4%

qui 21

TC 1.6%

tree 6 m. tall (formerly taller
but main stem cut off
2 m. above ground), 2 dm. thick,
bark very scaly, leaves
reddish when old, fruit ^{some} immature and dehiscent
stipules strongly reflexed.Dec. 9 - Finca Playon, just below Las
Mercedes, near head of Rio BalsillasMeta Caqueta
7600'

Dense wet forest

93 *Cinchona pubescens*

Anal. Bellis.

g+c 1.4%

Ci 0.3%

qui 0.1%

TC 1.7%

Anal. Bellis.

g+c 21

Ci 0.9%

qui 21

TC 0.8%

94 *Cinchona pubescens*tree 10-12 m. tall, 1 dm. thick,
flowers white, young
fruits pinkish. leaves stiff
but not especially thick
small tree or shrub 6 m. tall,
inflorescence purple,
calyx green, corolla dull
flesh color, fruit green.A few scattered *Cinchona*
pubescens trees in the cleared
valley, and stump sprouts
on the low foothills which
have been recently cleared suggest
that formerly this species
may have been abundant at 7000'±Quite a few trees of *C. pubescens*
here, a form with leaves
acute at base. Called locally
"cascarillo".small tree, some leaves red,
stipules reflexed, buds pink (Bark sample)
large tree 15 m. tall, 3 dm. thick, some
leaves red, stipules reflexed

Dec. 10 - Batán, on Rio Neiva
10 km. below source, about 32
km. s.e. of Neiva. Huila alt. 6700
cut over slopes with brush,
mainly Baccharis sp.

L 19: 95

~~herb up to~~
96 Fuchsia

97 Galium (Relbunium) - Hypocarpium

97a Stellaria

98 Selaginella

abundant on cut banks
above trail.

Dec. 10 - Valley of Rio Neiva
3 km. below Salado

Huila

Pasture with thickets along
small stream.

12: 99

Phytolacca

19300

Heliconia

in tall grass along stream

01

Salvia

~~Passiflora~~

02

Dec. 10 - Valley of Rio Neiva,
2-3 km. above La Puente,
bet. Algeciras and Salado
Huila

4 03

Hamelia

Thickets near river

herb up to 1 m. tall,
fls. orange-red, anthers purple.
- somewhat scandent
shrub, fls. scarlet,
- pendent.
vine, climbing through
bushes, fruits fleshy,
orange.
appressed to banks.

fl. white

herb, 1 m. tall, fls. whitish,
herb 1.5 m. tall, spike erect,
bracts red, fls. yellow.
- erect herb 1 m. tall,
fls. blue, herbage aromatic.
- weak herb, fls. deep chrome
yellow or orange yellow.

shrub 1.5 m. tall (others 3 m.), fls.
vermillion, fruits, infl. stems, petioles, red.

19304

Jamia

on steep slope above road, young plants abundant on nearby slopes.

Dec. 11 - Quebrada Perdiz, affluent of Rio Neiva, S.E. of Algeciras (San Juanito) 4.2 km. S. of Neiva

Huila

05 *Bidens*

woods along stream in deep gulch

06 *Alcornoque*

rocky places above trail, abundant

07 *Polypodium*

rocky places above trail

08 *Cinchona pubescens* Vahl

on steep slope in wooded ravine, not abundant but seedlings very common along trail. Most of it has evidently been cut.

09 *Centropogon*

wooded ravine

10

wooded ravine, climbing in *Cinchona* tree.

11 *Drymaria*

disturbed ground below trail in deep wooded ravine, not shaded

trunk 6 dm. tall, leaves erect to spreading, leathery, glaucous, staminate spikes erect, buff, malodorous.

4500 ft. Vine-like herb, hanging from small trees, flowers bright yellow.

rhizome or roots used as a vermifuge.

6000 ft. rhizome creeping, fronds leathery.

6450 ft.

Anal. Bellis

Q+C 0%

Ci 0.1%

Qu 71

TC 0.2%

Small tree, 8 m. tall, about 1 dm. thick, some leaves red, veins and petioles reddish, stipules erect, spreading somewhat before falling and on sucker shoots. (Bark sample) leaves dull above.

6600 ft. herb, 1 m. tall, lactiferous, flowers scarlet, anthers purple.

6150 ft. herbaceous vine, extensively climbing, inflorescences pendent, green. leaves glaucous beneath.

spreading herb, fls. white.

19312 *Cinchona*
in ~~the~~ wooded ravine,
scattered trees but not abundant

Qa = 3.4
Cd = 0.5

Dec. 13 Meiva, Huila 472 m

Walked around town with Holdridge, looking at street trees, weeds, etc. *Mangifera indica*, *Melicocca bijuga* (Marmoncillo), *Ficus benjamina*, *Spathodea campanulata*, *Pithecellobium dulce*, *Erythrina glauca*, *Casearia* sp., *Chlorophora tinctoria*, *Cordia* sp. with rough leaves, ^{small} white fls. and translucent white fruits, *Gliricidia sepium*, *Delonix regia*, *Albizia* sp., *Lamanea saman*, etc. occur.

Cassia alata and *C. occidentalis* (?) are abundant as weeds. Noticed ~~a~~ a species of *Rauwolfia* with red fruits, herbaceous, growing wild. *Chrysobalanus icaco* has small obovate leaves. *Duranta repens*, *Plumeria rubra*, *Jatropha curcas*, *Jatropha* sp., *Lochnera rosea*, and many palms as ornamentals. *Citrus* common. Rice cultivated near the river outside town.

Anal. Bellis.
Q+C 2.9%
Li 0.2%
Zn 4
TC 3.1%

small tree 10 m. tall, leaves reddish, trunk 8 cm. thick. (Culb sample)

Here, as usual, the *Cinchona pubescens* is mostly cut, though some remains in ravines and probably in the patches of forest still remaining on the steeper slopes. Along the trail are sucker shoots and many small seedlings. At much higher altitudes *C. officinalis* occurs. At 3000 it is rather scarce where the trail goes ~~down~~ up the valley of the Q. Perain, but it must occur in some quantity elsewhere in the vicinity, judging from the number of people who are interested in collecting bark.

Guayusa ulmifolia is everywhere as a weedy tree.

- Dec. 15 - Rio Cabrera, 2 km below ^{confluence} of R. Ambica
3 km. ^{WSW} ~~below~~ Colombia, Huila

1000 ft.

Thin flat, recently flooded,
dominant plants *Jatropha* sp.,
Acacia farnesiana, *Cereus* sp.,
Opuntia sp., ~~Cactus~~ *Cactus* sp.,
rather heavily grazed.

19313

14 *Euphorbia*

15 *Scutellaria*

low grassy place

16

low grassy place

17 *Lithaexylum*

18 *Eragrostis*

19

common on grazed or disturbed
places

20 *Solanum*

common

21 *Evolvulus*

rare

22 *Ayenia*

The ~~road~~ road from Neiva
to here provides a grand
display of large cacti, several
Cerei and a couple of *Opuntias*.
It is a dry hot valley with
savannah and thorn
forest.

prostrate, forming a loose mat,
flowers yellow.

prostrate, glands pinkish
white, leaves glaucous beneath,
erect, flowers white outside,
violet within, lobes white,
herbage aromatic, odor rather
penetrating.

suffrutescent herb 1 m. tall,
flowers white.

Small bushy spreading
tree, 5 m. tall, flowers greenish
yellow.

culms spreading
prostrate, rooting at nodes,
forming large loose mats,
heads prickly.

yellowish green bush up
to 1 m. tall, usually leafy,
fruit bright red, thorns
yellow, dark brown toward
tips.

erect.

almost prostrate.

19323 *Lida*

common

24 *Boerhaavia*

25

common

26 *Tragus*

common on grazed or disturbed spots

27 *Evolvulus*

common

Dec. 15 - Colombia, on Rio ^{ambica} ~~Cabala~~
just above confluence with R. Calima, Huila
3000 ft

Dry eroded river bluffs,
bare soil with small
Prosopis trees, mostly bare
soil, some cacti (the
Mammillaria, two *Cerei*, one
Cactus, 2 or 3 *Opuntias*.)

28 *Croton*

top edge of bluff

29 *Delinia villosa*

det. S. J. Blake

ledges of gravel

30

near base of bluff. ~~ter~~31 *Leijanias*

near base of bluff

32 *Acalypha*

talus at base of bluff

33 *Abutilon*

talus at base of cliff

prostrate, flowers yellow.

prostrate, leaves glaucous
beneath, root obviously thickened
and perennial.

culms spreading

culms spreading

ascending, flowers blue,
leaves gray-sericeous.

fls. yellow.

Vine twining over small
bushes, flowers blue
vine climbing on bushes,
fls. white.

suffrutescent herb 7 dm.
tall. stigmas & styles white.
suffrutescent herb,
fls. orange.

17334 *Kallstroemia*
talus at base of bluff

35

Top of bluff

36

~~Lia~~ *Malvastrum spicatum* (L.) Gray

Top of bluff

37

Plumbago

Top of bluff

38

Desmanthus

Top of bluff, rare

39

Heliotropium

Top of bluff, common.

40

Top of bluff

41

Top of bluff, common

42

~~Lia~~

43

Top of bluff

44

Tillandsia

Top of bluff

45

Cassia

base of bluff and on ledges

46

Mud and gravel flats along river

47

Banana

abundant

48

Hypoxis

prostrate, fls. purplish,
closed when collected.
erect, fls. orange-yellow.

spreading suffrutescent
herb, fls. white.

fls. yellow, plant spreading,
depressed.

spreading ascending herb,
fls. white.

prostrate vine, flowers
light yellow, inflorescences

erect.
prostrate, fls. bright
violet.

erect suffrutescent herb
0.5 m. tall, fls. orange.

epiphytic on twigs of
P. volupis sp.

shrub up to 3 m. tall long,
hanging somewhat from
bluff. fls. white, fruit immature,
fls. & fruit from different plants.

erect, fls. white.

erect, fls. red-purple

herb 1 m. long, ascending,
fls. white, herbage
strongly aromatic.

19348 *Polygonum punctatum* Ell.

det.
not

49

50 *Momordica charantia*

edge of mud, on bank of river

51 *Malpighia*

bank of river

52

bank of river

Dec. 16 ^{Finca El Platan} S. side of valley of
Rio Ambica ^{1.5 km.}

above confluence of Rio Blanco,

13 km SSE of Colombia

Huila

4100 ft.

with
P. H. Weddell
2000 ft.

~~dry~~ Bushy hillside with
woods along streams.

53 *Mangrovia*

in woods, ~~weak~~

54 *Cosmibuena*

edge of woods

55 *Heliconia propayanensis*

edge of woods

56 *Cosmos*

along trail, open bushy slope

57

along trail, bushy slope

58 *Cuphea*

along trail, bushy slope

59 *Polypodium*

cut bank along trail

60 *Polypodium*

cut bank along trail.

- fls. whitish. plant erect.

- erect, fls. purplish.

- vine, fls. yellow, fruit
orange, splitting into 3

- parts, seeds red.

- small shrub, 0.5 m. tall

- fls. pink, fruit red.

- fls. whitish.

- weak shrub, leaning
on other shrubs, 5 m. tall.

anal. Bellis:
not more than
traces of
cinchona
alkaloids.

- Tree 7 m. tall, fruits immature.

leaves leathery, pale beneath.

- bark smooth, brown.

- large spreading tree 8 m. tall.

- fruits purple, conspicuous

rays pink, mature

achenes radiating at all angles.

- fls. white.

- shrub up to 1 m. tall. fls.

- with pink petals.

- 19361 *Browallia*
grassy place along trail
62 edge of forest.
- 63 forest
- 64 *Borreria*
in woods, along stream
- 65 *Elephantopus*
in woods along stream
- 66 *Asplenium*
rocks and earth along stream
- 67 *Blechnum*
rocky bank of stream
- 68 *Anemia*
rocky bank of stream
- 69 *Blechnum*
rocky bank of stream
- 70 *Borreria*
edge of stream, rocky bank.
- 71 *Corrihuera*
wooded ravine

Dec 17 - Rio Ambica near Guabada
Honduras,

Huila.
4100 ft.

Wooded ravine

72 *Palicourea*

73 *Terminalia*

isolated tree on bushy slope

fls. bright blue with
yellow eye.

erect shrub with single
stem, 3 m. tall, leaves
white beneath, inflorescence
very large, compound,
involucre purple, fls. red.
spreading tree, 7 m. tall,
fruits green, flattened.
fls. white

fls. very pale lavender,
nearly white.

fronds quite diverse.

fls. white

tree 15 dm. tall, 3 dm. through,
fls. white, fruit immature

shrub, fls. & infl. yellow.
Tree 6 m. tall, fls. white.

"faint, main"
leaves if
inside still
no pressed against
a cut will
stop bleeding.

19374 *Rondeletia*
woods along trail

75 *Ladenbergia*
abundant in woods in ravine
anal. Bellis: not more than traces
of *Cinchona alkaloids*

76 *Tillandsia usneoides*
hanging in great masses from
Ladenbergia trees

Dec. 17 - Rio Ambica near
Quebrada La Cueva, 16 km SE of
Columbia

Quila,
4200 ft.

Wooded ravine and slope

77 *Cinchona pubescens*
edge of woods

anal. Bellis:

g + c tr

ci 0.49%

quin 2.

TC 0.49%

78 *Coccythium*
along trail, edge of woods

79 *Isertia*
edge of woods

80

along trail

81 *Liparuna*

82 *Calycephyllum*
dense woods

shrub 1-2 m. tall. flowers
pale pink, deep pink outside.

(bark sample) Tree 20 m. tall, 3 dm. thick,
leaves glossy, panicles
drooping. "Quino cascarrillo" locally.
silvery gray

tree 8 m. tall, fls. pink, fruits
immature, leaves rosate
beneath, petioles red, stipules
erect, later spreading.

(bark sample)

trailing herb, rooting at
nodes, flowers lavender,
fruit bright blue, fleshy.

tree 10 m. tall, 3 dm. thick,
leaves white beneath,
flowers white, fragrant.

flowers lavender blue,
campanulate.

shrub, fruits red, fleshy,

perianth, smell like lemon grass.

tree 3 m. tall, expanded calyx
lobe greenish white, corolla white.

Dec. 17 - Rio Ambica, near Quebrada San Pedro

Huila

Dense rain forest

1400 m.

14383

abundant along trail

Dec. 17 - Rio Ambica, near confluence with Quebrada la Trinidad, 23 km. SSE of Colombia

Huila

1250-1400 m.

Dense rain forest

84 *Jussiaea umbellifera* Karst.

fairly common locally

85

common locally along trail

86

87 *Cephaelis axillaris*

88 *Cissocaulon*

between rocks with water trickling between them, near stream

89 *Miconia*

near stream

Dec. 17 - Rio Ambica near source, just below (El Rucio) Paradero Cruz, 24 km. S.E. Colombia

Huila

6200 ft.

Wet ^{moist} rocks in trail

90 *Nertera granadensis* (L.f.) Ponce

Shrub 1.5 m. tall, flowers yellow, fruit dark red, fleshy.

spreading tree 6-7 m. tall, flo. white, brittle.

weak erect shrub, flo.

orange, fruit immature.

shrub 2 m. tall, flowers

white

green shrub 1 m. tall, flo.

white, fruit blue.

shrub 2 m. tall, flo. purplish white.

prostrate, fruit red. leaves darker green than usual

Dec. 18 - Buenavista, a small abandoned clearing on the trail from Colombia to Uribe, in drainage of Rio Tigre

Meta
4500 ft.

~~Wet~~ wet forest around edges of clearing

1939

Cephaelis

edge of clearing, thicket

92 Psychotria

thicket at edge of clearing

93 Ladenbergia

edge of clearing, common

94 Palicourea

shallow ravine

95

woods along trail

96

Dec. 18 - Trail below Buenavista, valley of Rio Tigre, 30 km. s.e. by c. of Colombia.

Meta

3500-2800 ft.

96

along trail

97 Cephaelis

very common in undergrowth in woods

98 Lasciaris

climbing among shrubs

erect herb 1.5 m. tall, flowers yellowish, bright blue, fleshy,

erect, fls. white. low juice when cut, pale easily, others much less white.

shrub 2 m. tall, when young, purple, green, fruit blue when ripe, in small

tree, flowers white.

3500 ft.

erect herb 1 m. tall, fls. white

3500 ft.

shrub 1-2 m. tall, stem green, fls. white, fruit blue, involucre white.

Dec. 13 - Buenavista, a small abandoned clearing on the road from Santa to Uribe, in

1939

~~Some~~ wet
of clearing
Cephaelis
edge of cle

92 *Psychotria*
thicket at

93 *Ladenbergia*
edge of ci

94 *Palicourea*
shallow

95

woods at

96

Dec. 13 - Trail below Buenavista,
valley of Rio Tigre, 30 km. s.e. by c.
of Colombia, Meta

3500 - 2800 ft.

96

along trail

97

Cephaelis
very common in undergrowth in woods.

98

Rassia
climbing among shrubs

Erect suffrutescent herb 1.5 m. tall,
bracts scarlet, flowers yellowish
white, fruit bright blue, fleshy,
pyriform.

shrub 2.5 m. tall, fls. white.

anal. pellets:
not more than trace
of linchona
alkaloids.

bark exudes yellow juice when cut, pale easily

tree 3 m. tall, others much

larger, flowers white.

sprawling shrub 2 m. tall,
inflorescence, when young, purple,
when mature green, fruits

purple-black when ripe.

vine climbing in small

tree, flowers white.

3500 ft.

erect herb 1 m. tall, fls. white

3500 ft.

shrub 1 - 3 m. tall, stem
green, fls. white, fruit blue,
involucre white.

Dec. 18 - Buenavista, a small abandoned clearing on the trail from Colombia to Uribe, in drainage of Rio Tigre

Meta
4500 ft.

~~Wet~~ wet forest around edge of clearing

19391

Cephaelis

edge of clearing, thicket

92 Psychotria

thicket at edge of clearing

93 Ladenbergia

edge of clearing, common

94 Palicourea

shallow ravine

95

woods along trail

96

Dec. 18 - Trail below Buenavista, valley of Rio Tigre, 30 km. s.e. by c. of Colombia.

Meta

3500 - 2800 ft.

96

along trail

97 Cephaelis

very common in undergrowth in woods.

98 Lasciaris

climbing among shrubs

Erect suffrutescent herb 1.5 m. tall. bracts scarlet, flowers yellowish white, fruit bright blue, fleshy, pyriform.

shrub 2.5 m. tall, fls. white.

anal. Bellis:
not more than 2%
of limonene
alkaloids.

bark exudes yellow juice when cut, pale easily

tree 3 m. tall, others much

larger, flowers white.

spreading shrub 2 m. tall, inflorescence, when young, purple, when mature green, fruits purple-black when ripe.

vine climbing in small

tree, flowers white.

3500 ft.

erect herb 1 m. tall, fls. white

3500 ft.

shrub 1 - 3 m. tall, stem green, fls. white, fruit blue, involucre white.

19399 *Jussiaea*
wet place, edge of clearing
near river

19400 *Nephrolepis*
on tree in wet forest, common.

19401 *Ixora*
along trail near river, common
on bluffs ~~and on bluffs~~

02 *Hippotis albiflora*
along trail in woods

03
bluff over river

04 *Trichomanes*
vertical moist earth wall on bluff

05
abundant on bluff over river
06 *Pteris altissima* Poir. det. O.B. Hollinger 1969
on vertical moist earth wall

07
bluff over river

08 *Cephaelis*
bluff over river

09 *Condaminea corymbosa*
bluff over river

Dec. 18 - Ridge bet. Rio Tigris and
Rio Papamena, trail from Colombia
to Uribé, Papamena side

10
earth bank, wet woods

11 *Ladenbergia*
abundant on slope, broken woods

3000 ft

herb 2 m. long, supported on
other plants, flowers small,
less than 1 cm. across, yellow.

3200 ft.

2800 ft.

shrub up to 2 m. tall,
infls. all cauline below
leaves, coral red; fls. with
lobes yellow, shading to red
on tube; fruit white, fleshy.
shrub 3 m. tall.

3100 ft.

2800 ft.

2800 ft.

2700 ft.

rhizome erect, with
several fronds, all sterile

herb 1 m. tall, bare stem
up to main node.

erect herb 1 m. tall, involucre
white, fruit translucent
pale green.

tree 20 m. tall, corolla purple
outside, green within

3500 ft.

flowers red } peels easily.
bark exuding yellow juice when cut,
anal. Gallic: no
more than traces of 7 res 6 m. tall, panicles somewhat
hunched albatrid. drooping. (Bark sample)

Dec. 18 - Rio Papamene, on trail
to Uribe,

Meta

2500 ft.

19412

growing downward on mossy tree
trunk beside river

Dec. 19 - ^{7 km. n.e. of Uribe} Chambuscado ^{Las Lagartijas} on plateau between
Rio Papamene and Rio Duda,

Meta

3500 ft.

Clearing on hilltop

13 *Coccocypselum*

14

15

16

edge of clearing

17 *Jussiaea*

18

19 *Rotala Scoparia dulcis*~~*Psychotria*~~

Las Lagartijas

Dec. 19 - Plateau between Rio ~~and~~
Papamene and Rio Duda, east of
Chambuscado, 5-6 km. n.e. of Uribe

Meta

3500 ft.

along trail in dense forest

20 *Psychotria*

abundant

21 *Cephaelis*

abundant

flat to trunk

decumbent herb, fls. lavender.

- fruits blue, fleshy, pyriform.

- flowers yellow.

- flowers blue-lavender.

- erect shrub, 3 m. tall, virgate.

- flowers white.

- herb 1 m. long, fls. yellow, leaf

- than 1 cm. across.

- decumbent herb, flowers bright

- rose, tube deeper colored.

- erect herb, fls. purplish-white

~~slender erect~~

slender erect shrub 3 m. tall.

- fruits purple.

- shrub with green stems.

- up to 2.5 m tall, fls. white, involucre

white.

194122 *Cephaelis*
common

Dec 19 - Uribe

Meta

2800 ft.

Clearings around edges of
village

23

edge of ravine

24

Gouania

edge of ravine

25

grassy place

26

Palicourea

edge of ravine

27

~~grassy place~~

grassy place

28

Solanum

~~thicket~~ thicket

29

Phytolacca

thicket

30

Fuchsia

grassy place

31

Dichromena

grassy place

32

Bidens

fencerow

33

Triplaris

fencerow

34

Euphorbia

grassy place

herb up to 1 m. tall, bracts
scarlet, flowers pale yellow.

vine climbing in bushes,
flowers rose color, anthers
purple. latex. said to be a latex
large vine climbing over
trees, fruiting copiously.
erect, disk greenish white.

shrub ^{2.5} m. tall, thyrses orange,
corolla pale yellow tipped
with deep orange red.
flowers white

puffrutescent, semi-scandent
herb, flowers pale lavender.
herb up to 1 m. tall, racemes magenta,
fls pink, fruit immatures. "guava" locally

small tufts, bracts white

vine, hanging from tree,
fls. yellow stem ^{with} slightly ds.
semi-scandent shrub,

prostrate with erect branches,
fls. pink

19435 *Borreria*

grassy place

36 *Borreria*

grassy place

37 *Borreria*

grassy place

38 *Borreria*

grassy place

39 *Tabernaemontana coronaria*
cultivated

Dec. 20 - Uribe

40 Ravine with stream

Meta
2500 ft.41 side of ravine
Blechnum

42 vertical earth walls of ravine

43 *Marattia longipes* ^{all over}
on rocks in running water ¹⁹⁵⁴
~~*Leptopteris*~~44 *Leptopteris*

on moist vertical earth sides of ravine

45 *Blechnum*on moist or wet vertical earth sides
of ravine

moist woods along stream

46 dense woods

fls. white

fls. white

fls. white

fls. white

shrub, flowers white, odorless.
leaves dark green."doncello"
shrub up to 4 m. long. inflorescences
flattened, pink, fls. pink, white
distally, fruit immatureholdfast spongy, closely branched,
forming networks on rocks, leaves
finely branched, peduncles soft,
thick and fleshy in bud, smaller
in flower, wiry in fruit.
flat, prostratelarger plants up away
from water, smaller near
water's edge.erect slender shrub with long
leafy lateral branches, upright,
fls. white, fruit bluish green.

19446 *Remijia pedunculata*

dense woods, forming a "mancha" or patch

47 *Remijia pedunculata*

"mancha" or ~~small~~ small patch in dense woods. said to be abundant in this vicinity. bark used by inhabitants. clearing on slope

48

49

50 *Jacaranda*

51

52 *Viçnia*
common

53

wooded hill, moist woods
tangled with lianas and Chusquea

54

55

forest floor, common

56

Remijia pedunculata

scattered trees in dense woods,
not reaching canopy.

slender tree 10 m. tall, leaves
dull dark green. fruit mature.

"quina cuprea" or "quina"

slender tree 15 m. tall, fruits
almost mature, a few mature.

"quina cuprea" or "quina"

bush 1 m. tall, fruit pale green.

bush 1.5 m. tall, flowers yellow.

slender shrub 3 m. tall, flowers

on bare shoot, purple.

buds much deeper purple.

erect, fls. white

shrub 2 m. tall (others seen
are trees), flowers pale copper
colored, ~~thin~~ bark exuding

red vernillious latex when

broken. "punta de lana" "lana"

fls. yellow.

erect shrub 3 m. tall, enlarge-
ments below nodes contain
small ants.

Anal. Bellis:

g+c 1.4%

ci 0.4%

qui 0.4%

TC 2.2%

small tree, 10 m. tall, 1 dm.
thick, bark thin, bitter, red-brown,
outer layer comes off easily as
a thin paper-like layer. fruits
immature. (Bark sample)

- 19457 *Cephaelis*
on forest floor, rare
- 58 "
climbing to canopy of forest
- 59 *Polypodium*
on mossy tree trunk
- 60 *Vittaria*
on mossy tree trunk
- 61 *Ladenbergia magnifolia*

Dec 21 - Rio Buda, just above
Umu

Meta

2500 m.

- 62 *Malva*
yard of abandoned house
leaves only
- 63
yard of abandoned house in Col
leaves only
- 64 *Weringia*
along trail in moist woods
- 65 *Hamelia*
along trail in moist woods
- 66 *Opismenus hirtellus*
along trail on rocks on shaded
side of ~~gully~~ deep ravine
- 67 *Adiantum*
side of trail on rocks in deep ravine

bracts and fruits bright purple.
large liana, stem flat.

fronds leathery

Anal. Belles
not more
than trace
of linchona
alkaloids

tree 25 m. tall, 3 dm. thick,
bark exuding yellow juice
when cut, ~~the~~ oxidizing
reddish. (bark sample)
"cascarilla"

herb 1 m. tall, fls. white
"malva"

Taji indicis

herb 1.5 m. tall, flowers yellow,
fruit red when ripe

Guamaria sajoni

large liana hanging
from trees, fls. whitish, fruit white,
1-seeded *Thespenis* for ulcers
shrub 4 m. tall, flowers
orange-red, fruit immature
suberose ascending

erect.

1968

wet rocks along river

69 *Heliconia*

climbing the suspension bridge

along river

70 *Adiantum*

in crevices under overhanging rocks

71 *Polypodium*

on wet rocks along river

72 *Adiantum*

on wet rocks along river

73 *Polypodium*

on wet rocks along river

74 *Bixa*

along slope along trail

75 *Anemba clinata* Mickel det. J.T. Mickel 1966vertical earth bank, densely
growing the 2 m.

76

along trail in moist forest

77

along trail in moist forest

78

along trail in small clearing
in moist forest.

79

along trail in small clearing
in moist woods. common

80

edge of woods, climbing in bushes

81

edge of clearing in moist woods

"Pana silvestris"

basilecumbent, stem erect,
flower horizontal, corolla brilliant
scarlet outside, lobes green
speckled with black within
pale green, growing downwards
on vertical rock surface.erect, fronds, depressed
to protect flat surface to light
stem erect, blades depressed,
lean back to light.shrub 3 m. tall, fruit green,
spines soft, leaves bronzed
beneath "achote"suffrutescent herb 7 dm. tall,
inflorescence purple, fruit immature,
herb 7 dm. tall, fls. whiteherb 1.5 m. tall, fls. white,
leaves slightly aromatic when brokenerect suffrutescent herb
1.5 - 2 m. tall, flowers white.

woody vine, flowers yellow

spreading tree 7 m. tall,
flowers white.

- 19482 *Vernonia*
edge of clearing in moist woods.
- 83 *Mikania*
edge of clearing in moist woods.
- 84 *Vernonia*
edge of clearing in moist woods.
- 85 *Centella*
edge of clearing in moist woods.
- 86 *Passiflora*
edge of clearing in moist woods.
- 87 *Jussiaea*
clearing in moist woods.
- 88 *Modiola caroliniana*
clearing in moist woods.
- 89 *Hypoxis*
clearing in moist woods.
- 90 *Borreria*
clearing in moist woods.
- 91 *Ingonia cordata*
clearing in moist woods.
- 92
valley side of shaded ravine
- 93 *Psychotria*
moist woods.

Dec. 22 La Lagartosa
Plateau between the
Rio Duda and Rio Papamene
on trail from Colombia to Uribe,
east of Changuacardo, 5-6
km. s.w. of Uribe. Meta
dense moist forest along
cleared trail.

- semicandent shrub
3 m. tall, fls. purple
- vine climbing in trees,
flowers white, almost odorless.
- vine climbing in trees, flowers
white
- woody herb 1.5 m. tall, fls.
white.
- vine climbing in trees,
fls. white, cyathes flat topped, fruit green.
- spreading herb fls. yellow,
very small, 5 mm across.
- erect suffrutescent herb
1 m. tall, fls. pink
- "botonilla" fls. white.
- "Sesuvium" diffused herb, fls. white
- "oregonia" pedicels sticky
when in fruit
- herb 7 dm tall, bracts bronze-
purple, corolla white
- green stemmed slender shrub,
fruits red.

19494 *Cephaelis*95 *Psychotria*96 *Cephaelis*97 *Randia (Duroia)*98 *Psychotria*

99

in this place in forest

19900

01 *Psychotria*

La Legatija.

Dec. 12 - Platium between
Rio Guadalupe and Rio Papamena, about
from Colombia to Uribe, west
of Cambuscadero, 8-9 km. n.w. of
Uribe

dense moist woods

Meta

3500 ft

02 *Psychotria*03 *Jussiaea umbellifera*04 *Chusquea*05 *Remyia pedunculata*

3500 ft. shrub 2 m. tall, bracts & buds
white, stems green.

1000 ft. shrub 1 m. tall, buds white.

1000 ft. shrub 1 m. tall, rather stiff,
stems green, bracts purple,
fruits very juicy, flesh
translucent, pale lavender.

1000 ft. slender tree 4 m. tall, 3 cm. thick,
fruits green.

1000 ft. shrub 2 m. tall, fruit immature
forming tangles several
meters deep.

vine climbing in shrubs,
fls. white.

shrub 1.5 m. tall, fl. white,
old inflorescence purple.

shrub 2 m. tall, fl. white.

tree 5 m. tall, fruit immature.

vine forming dense tangles,

~~branches~~ culms hanging

from trees, have branches

upward, all plants

in region in flower.

small tree, fruit immature.

km. s. of Rio Papamere,

can be, - small ^{open} rock
ridge, decomposing into
white sand, mossy, surrounded
by forest 3000 ft

14500

07

08 *Panicum andersonii* Mez ^{det. Johnston}

09 *Trichomanes*
in moist rock crevices

10 *Trichomanes*
in tufts of moss on rocks

11 *Eriocaulon*

12 *Panicum*
abundant

Dec 12

East side of valley, Rio
Papamere, in Colombia - Unbe
trail

Ma Ta
3000 ft

13 *Liparura*
in wet woods

14

abundant on slope

weak supertextant
herb, fls. bright red.
shrub 2 m. tall, others
in forest nearby, forming
small trees, stamens white
erect, stip.
fronds erect

growing loose clusters,
heads whitish
short culms erect, long
ones prostrate, rooting
at some nodes.

"chuebo" shrub 3 m. tall,
fruit pyriform red, smelling
strongly of lemon grass oil.
leaves & stems red.
shrub 2 m. tall, fruit & leaves

Dec 23 - Valley of Rio Papamene,
Colombia - Uribe trail

East, wet hillside ^{Meta}
with dense jungle 2500 ft.

19515

16 Jussiaea
opening

17

18 Psychotria

19

Lacucha

20

Psychotria

21

Maiachra

weedy clearing

Dec. 23 - ridge at ~~south~~
Papamene valley, east slope
of ridge bet. ~~Papamene~~ Rio Papamene
and Rio Tigre, ~~Colombia~~ -
Uribe trail

Meta

Wet forest

1500 - 2000 ft.

32

on trunk of partly fallen tree

33

34

Cephaelis

35

Canna

- herbaceous vine, corolla yellowish-
green, fruit immature
- erect herb, ~~1 m.~~ 1 m. tall.
- corolla yellow
- shrub, fruit blue.
- shrub 1 m. tall, fruit white,
flowers white
- climbing in bushes, ^{ripe fruit} black
- shrub 2 m. tall, fruit immature
- herb 1 m. tall, fls. bright
yellow "malva" see Rodriguez

2500 ft.

leaves ~~thick~~ coriaceous, flowers
yellow-green

2000 ft.

- shrub 1 m. tall, fruit orange-red.

3500 ft.

- shrub 1 m. tall, fruit blue

3500 ft.

1.5 m. tall, flowers ~~cream~~
~~flowers~~ cream-white,
arranged spirally, ovary
dull white, very fleshy and
rugose, 3 lobed, each lobe
deeply grooved vertically, sepals
large, petals white, bracts green.

19516

27

Quebrada Diluvio.

Dec 23 - affluent of Rio Tigre
below ~~Cartagena~~ Cartagena, Colombia. ~~30 km~~ 30 km. ~~W. of~~ ^{W. of} Colombia

Washed bluff,

28 *Liparuna*29 *Remigia pedunculata*Dec 23 - Cartagena, Colombia. ~~W. of~~ ^{W. of} Colombia
trail, on Rio Tigre, 30 km. ~~W. of~~ ^{W. of} Colombiacleared ~~at~~ wet bottom-land, 2000 ft.
somewhat grown up with bushes.30 *Liabum*31 *Diadia*32 *Diadia ocimifolia* (Willd.) Bren.33 *Manettia*

circumsciss, twining around bushes.

34

growing up through grass and weeds

35 *Liparuna*36 *Vernonia*37 *Cephaelis*small tree, wood soft, inflorescence
in fruit long and pendent,
fruit flesh-color, fleshy
shrub somewhat scandent
2 m. tallerect suffrutescent herb,
1.5 m. tall.sterile shoot, large sterile
tree nearbyerect or reclining herb, ~~4 m~~
1-1.5 m. tall, fls. bright yellow.

fls. white

vine, flowers bright red with
yellow hair in center.

fls. yellow

shrub 1.5 m. tall, strongly
scented w/ lemon-grass oil.

herb 2 m. tall, fls. lavender

shrub 2 m. tall, fls. campanulate,
white but bluish or purplish
on outside of corolla lobes,
bracts white. stems green.

19537

Dec 23 Buenavista, 50 km
Rio Tige on Colombia - Uribi Trail,
20 km. e.s.e. of Colombia Meta

38

along trail in wet forest, common

39

Blechnum

in wet woods

Dec. 24 - Colomb - Uribi Trail, between
Buenavista and La Ruica (pass),
25 km e.s.e. of Colombia Meta

40

trail on steep wooded slope

41

cleared trail in wet forest on more or
less level ground, white sand

42

cleared trail in wet forest, ^{white sand} more or less level

43

Panicum

cleared trail in wet forest, ^{white sand} more or less level

44

Nertera granadensis (L.f.) Druce

cleared trail in wet forest, ^{level, white sand}

45

Jussiaea Ludwigia leptocarpa (Muhl.) Harms ^{occasionally}

edge of cleared trail in wet forest,
level, white sand

46

wet forest, level ground

47

Coccoloba

cleared trail in level wet forest

48

Blechnum

dense wet forest

culm ascending

7700 ft. leaves dark green, flowers

white, fruit immature

4500 ft. rhizome short, erect, ~~fronds~~
fertile fronds erect, sterile
somewhat spreading

5000 ft

herb 0.7 m. tall, fls. orange-red,
little latex.

5000 ft.

small tree 5 m. tall, flowers
white, fruit immature.

5000 ft.

5000 ft

48

5000 ft.

prostrate, leaves dark green, fruit
translucent coral red.

5000 ft

herbaceous, vine-like, climbing
4 m. in a tree, fls. yellow.

5000 ft

shrub.

5000 ft

fls. bright purple.

5000 ft.

climbing, rhizome 4 m. long, clinging
to tree by many fibrous roots, fronds
in upper half

- 19549 Psychotria
dense wet forest
50 Blechnum
dense wet forest

- 51 Blechnum
— dense wet forest
— same loc., just below La Ruca

- 52 Psychotria
dense wet forest, steep slope, trail

- 53 Psychotria
dense wet forest, steep slope, trail

- 55 Psychotria
trail in dense wet forest, steep slope

- Dec. 24 - Colombia - Uribe trail,
headwaters of Rio Ambica, just below
La Ruca (Pass) or Paso de Las Cruces

Quila

- 56 Psychotria
dense wet forest

- 57 Palicourea
dense wet forest

- 58 Viola
mossy rocks in trail in dense, wet

- 5500 ft. shrub 2 m. tall, fls. white.

rhizome very short, prostrate
on ground, fronds climbing,
up to 10 m. long, lower 2-3 m.
naked, the rest with opposite
or subopposite pinnules about
15 cm. apart. Frond twining
in trees, this plant sterile,
— as far as I could see.

same as #5519550, but from
hanging portion of a fertile
frond of another plant.

- 6000 ft. erect herb, ~~fls. white~~ 1-2 m. tall,
unbranched or almost so.

— flowers and mature fruit white.

- 6000 ft. erect herb 2 m. tall, fls. yellowish
— fruit immature

- 6500 ft. herb up to 1 m. tall, fls. green,
fruit bright purple when
ripe.

~~6500 ft.~~

6500 ft.

shrub 1.5 m. tall, fls. pink
to infl. purple, lvs. pale beneath

6500 ft.

shrub 2 m. tall infl. reddish,
fls. brown - yellow.

6000 ft

fls. pale lavender, marked with
purple.

woods

Dec. 24 - Upper Rio Ambica, bet. La
Rueda and confluence with ~~Rio~~
Quebrada Trinidad

Huila

19559

wet forest

60

among rocks on trail in wet forest

61

trail in wet forest

62

wet forest

Dec. 24 - Upper Rio Ambica, at confluence
with Quebrada Trinidad,

Huila

63 Trichomanes

on ^{dry} rocks beside river

64

in trail beside river, moist

65

Viola

in shade of log, on rock in river

66

Polypodium

base of dry rock near river

67

rocks near river

Dec. 24 - Rio Ambica, near confluence
of Quebrada San Pedro

Huila

68 Chusquea

dense moist forest

5800 ft

pendent from tree

fls. white

5000 ft.

5000 ft.

herb 0.5 m. tall, fls. deep
scarlet, anthers purplish
pendent from mossy tree-trunk.

fronds stiff, reflexed.

prostrate, stems fleshy,
fls. purplish.

prostrate, clinging to rock,
fls. lavender, purplish near center.

small tree, 5 m. tall (others
larger) inflorescences pendent,
with white, pinkish bracts.

~~from~~ liana forming dense
tangles, pendent ~~from~~ culms
with reflexed branches,
flowering all thru region at this alt.

Dec. 29 - Antillas, E. side of Rio Blanco,

Huila

5500 ft.

19569

Moist forest on slope

Cinchona officinalis L

dense forest, mostly *Quercus*

70 *Cinchona officinalis*

dense forest mostly *Quercus*

(Qui. 10.1% heptab. 6.0%)

71 *Cinchona officinalis*

dense forest

72

73

Quercus

cleared slope near edge of forest,
in deep grass

74

Gymnosiphon

in humus in dense forest

75

Guettarda

cleared slope

127

only one *quina* tree, rather common in part of forest we visited. *Quina* said to be an old plantation, but this not distinguishable from other.

About 20 trees per hectare on the hills. Bernal's holding said to be same in all forests around upper Rio Blanco.

small tree 3 m. tall, 5 cm. thick, leaves dark green, petioles red, flowers purple. (dark sample) hair on corolla lobes white 2-3 mm thick

tree 15 m. tall, 2.5 dm. thick,

leaves dark green above "quina verde" (bark sample)

"quina colorada" "calisaya" 14-17 m.

tree 10 m. tall, 8 cm. thick

(bark had been previously removed from lower part), leaves dark green, ~~flowers~~ stems and petioles + midveins red. flowers purple, hair on corolla lobes white bark thick, ~~not~~ somewhat split, bitter, whitish but quickly oxidizing brown. (bark sample) 3-10 mm

liana, fls. white.

erect, fls. white, corolla hairy within.

erect, fls. leafless, fls.

white, nodding

clump of sprouts from stump.

fls. white, edges of corolla lobes ^{thin} crisped. fruit immature.

Anal. Ballis:
Q + C 2.8%
C 0.7%
TC 3.1%

Bark thick
leaves - 2-3 mm
flowers - 2-3 mm

Anal. Ballis:
Q + C 2.6%
C 0.5%
TC 3.1%
Q + C 2.2%
C 0.5%

- 19576 *Polypodium*
on tree-trunks
- 77
clear slopes abundant
- 78 *Gnaphalium*
open grassy slopes
- 79 *Marrubium vulgare*
open grassy slopes
- Dec. 26 - Hillside above Colombia,
Huila 3100 - 3500 ft.
overgrazed, wooded, at most
treeless steep slopes
- 80 *Salvia*
- 81 *Stachys Aristida*
- 82 *Delilia biflora*
sides of gully
- 83 *Croton*
sides of gully, under tree
- 84 *Prophyllum rutilans*
sides of gully
- 85 *Euphorbia*
sides of gully
- 86 *Tillandsia*
on *Bumelia* tree (with #19587 & #19588)
- 87 *Tillandsia*
on *Bumelia* tree (with #19586 & #19588)
- 88 *Tillandsia*
on *Bumelia* tree (with #19586 & #19587)
- 89 *Chloris*
- 90 *Tricachne*
abundant

fronds stiff

up to 2 m. tall
clumps, said to be very good
stock feed.

"vitavita", infusion very
bitter, used for fever.

"salvia" used for paralysis

flowers blue, not eaten by stock
tuft, culms spreading
flowers yellow

"mosquero"

glaucous, very bad odor

bracts pink, glands white

in large clumps, bracts red,
flowers yellow.
abundant

clumps, bracts red, fls. blue

small tufts

tufts, culms spreading & erect.

- 19591 *Setaria*
 92 *Waltheria*
 93
 94
 95 *Phoradendron*
 parasitic on *Prosopis* sp. (?)
 96 *Cornua*
 bare side of gully
 97 *Tridax procumbens*
 gully
 98
 side of gully
 99 *Dalechampia*
 rocky gully
 19600 *Acalypha*
 rocky gully
 01 *Boerhaavia*
 rocky gully
 02 *Abutilon*
 one of the most abundant
 plants on slope
 03
 04
 rare
 05 *Abutilon*
 one of the most abundant plants
 on slope

- tufts, culms spreading
 stems ascending, to 0.7 m., flowers
 yellow
 strongly aromatic, fls. white,
 fls. white.
 bright green, ripe fruit orange,
 fls. white
 involucre purplish, rays
 white, disk yellow.
 prostrate, rooting at nodes
 prostrate, flowers greenish,
 between large bracts
 low shrub, browsed by
 stock.
 perennial herb, up to 1 m.
 long, many stems from
 one root, ascending, fls.
 deep rose.
 fls. deep orange, plant
 evidently unpalatable to
 stock.
 erect, flowers yellow
 shrub 1.5 m. tall, fruit
 yellow. herbage with an
 unpleasant odor when broken
 over, fls. orange yellow, plant
 evidently unpalatable to
 stock.

Dec. 26 - Colombia, on Rio Ambores

Huila

3000 ft.

road along bed of river

19000 *Pomaria*

07 *Richardia*

08 *Euphorbia*

09 *Cyperus* (*sp.*)

10 *Ipomoea*

11 *Vernonia*

12 *Vernonia*
abundant

13 *Ipomoea*

14 *Pomaria*

Dec. 28 - ~~Atenas~~ Quebrada Arica
above Galilea, 7. amion ~~Galilea de~~
Mun. de Colombia, 25 km. e. n.e. ~~Colombia~~ ^{2000-2500 ft.}
Rain forest on side of canyon

with clearings here and there.

15 *Psychotria*

along trail in forest

16 *Galium* (*subgenus*) *hypocarpium*
edge of clearings

17 *Lycopodium*

on trees in recently felled forest

- erect, fls. white

- prostrate, fls. white

- ascending arching, glands white

- tufts between stones, creeping

- plant on banks, heads green

- prostrate extensive spreading

- vine, fls. lavender

- herb 2 m. tall, fls. purple

- bush 2 m. tall, much

- branched, forming dense

- masses, fls. white

- prostrate branching vine

- several m. long, fls. bright

- yellow, stigma vivid, lobes

- sharply diverging some-

- what enlarged.

- fls. white

- gall tree with sprouts

- along trunk, fls. white

- fruits green

- vine climbing in bushes

- fruit fleshy, orange

19617a *C. phenomenus*

tree in recently pulled forest

18 *Cinchona pubescens* Vahl
abundant in forest just
above stream3 19 *Palicourea*

wet forest

1 20 *Gynandropsis*

wet forest

1 21 *Cinchona pubescens* Vahl
wet forest1 22 *Hoffmannia*

wet forest

1 23 *Sadenbergia*

wet forest

1 24 *Cinchona officinalis*
wet forest, rare.

Anal. Bellis:
no more than
traces of
Cinchona
alkaloids.

Anal. Bellis:
2a: 3.9 g+C 4.1%
3a: 0.2 (g 50.4 5.3%)
Ci 0.4%
Qui 0.1%
TC 4.6%

1 25 *Fuchsia*

in bushy clearing

1 26 *Piper*

wet forest

1 27

in ground

Anal. Bellis:
g+C 0.7%
Ci 0.8%
Qui 2%
TC 1.5%

tree 15 m tall, 2.5 dm thick,
new leaves red, old with
slightly reddish veins.
fruit immature, bark
bitter (bark sample)Tree 5 m tall, 2 dm thick,
inf. yellow, fls pale yellow
fruit 1.5 m tall, flowers red, fruit
immature

Anal. Bellis:
g+C 1.1%
Ci 2.0%
Qui 2%
TC 3.1%

Tree 15 m tall, 3 dm thick,
new leaves red, veins
of them slightly reddish,
fruit immature (bark sample)erect herb, 1.5 m tall, fls.
reddish yellow6 m tall. tree 20 m tall, 3 dm thick,
fruit mostly immature.
(bark sample)sproouts from an old tree
broken off about 4 m. up
no fertile trees seen. leaves
green (bark sample)

vine, fls. pendent, scarlet

shrub, 1 m tall

~~erect~~ erect, fls. white

- 19628 *Cinchona officinalis*
small group in wet forest
- 29 *Vaccinium*
epiphytic in wet forest
- 30 *Phytolacca bogotensis*
abundant in clearing
- 31 *Psychotria*
wet forest along trail
- 32 *Bursera*
weed in clearing
- 33 *Gynandropsis*
~~weed~~ weed in clearing
- 34
along trail in wet forest
- 35 *Passiflora*
along trail in wet forest
- 36 *Blechnum*
edge of clearing
- 37 *Cephaelis*
edge of clearing

Dec. 29 Small affluent of Quebrada
Ariari on south side below Galilea,
Francisco Galilea de Muen. de Colombia,
Huila

Small patch of woods on slope 5400 ft

- 38 *Uromyza*
- 39 *Phyllanthus*
- 40 *Montanoa*

- very small tree, sterile, veins
of leaves reddish.
- pendent vertically from
trees, up to 5 m long,
for coral red with green tips.
- herb, 1 m tall, fls. pink, fruit immature
wet herb, 1 m tall,
fruit white, fleshy
fls. white
- wet herb 2 m tall, flowers
dark red, racemes erect, fruits
green
- herb 1.5 m. tall, fls. red.
fruits orange.
- vine, climbing, tangled in
undergrowth
- rhizome strongly ascending
from an erect rhizome.

Liana climbing in trees fls.
whitish

fls. pale green.

small tree 5 m. tall, 1 dm. thick,
ray white, disk yellow

Nov. 29 - Ridge bet. Guadalupe
Arauca and Guadalupe San Blas.

Traccin Garcia de Thun to Colombia

Patch of wet woods on steep slope

19641

42 Palicourea

43

44 Psychotria

45

clearing, at edge of woods abundant

46 Quercus

abundant, major part of woods

47 Palicourea

48 ~~Calyptrotheca~~ Siparuna

49 Ravicaria

50 Palicourea

51

clearing, along inside of route.

erect shrub with main
stem and horizontal branches.

- fruit green
- shrub 1.5 m tall, fls. bright

- purple infl. green
- erect, branched shrub, fls. yellow

- fruit maroon, fleshy.
- erect unbranched or sparsely
branched herb, fls. and

- fruits white
- suffrutescent herb 2.5 m.
tall, fls. yellow "fls. amarillos"
tree 12 m tall.

- shrub 3 m. tall, thyrses purple,
- fruit green, immatures

- semi-scandent shrub, 5-6 m.
long, leaning on other shrubs,
odor of lemon-grass, fruit
reddish, pyriform, fleshy.

- low tangles in undergrowth.
- shrub 2 m. tall, infl. green,
fls. flesh color, mature fruit
black.

- erect herb 1 m. tall, lactiferous,
fls. green, corolla lobes tipped
with maroon.

Dec. 29 - ridge s. of quebrada
San Blas, Garilua trail, Finca
El Valle de Maun de Colombia,
Huila

500 ft

brushy clearings and pastures

1947 52 *Dictyonia fruticosa* (Willd.) OK.
rocky place

53 *Viburnum*

fence-row, common

54 *B. neri*

pasture, common

55 *Dioscorea*

pasture, rare

56 *Myrsine*

fence-row, common

57 *Wernmannia*

fence-row abundant

58 *Eugenia*

fence-row, abundant

59 *Fadenbergia magnifolia*

fence-row, rare

60 *Escobedia*

~~rocky~~

61 ~~rocky~~

Rocky knob with brushy
vegetation

61

62 *Liphocampylus planchonis*
det. E. M. V.

fls. white, fruit immature

small tree, fruit black.

fls. white

fls. pale lavender

small tree, fruit immature
"eucharo blanco"

small tree, 5 m. tall. fls.
whitish "maendillo" "Paraban"

small tree, 5 m. tall, 5 cm.
thick, ripe fruit purple-black.
tree 10 m. tall, 2 dm. thick,
fruit clusters somewhat
pendent, leaves glossy (dark sample)

"cascadilla"
erect fls. white "used for
coloring food"

"fls. eaten for sore throat"
vine creeping on ground and
climbing small bushes,
fls. yellow, reddish outside
suffrutescent herb, 0.7 m.
tall, fls. bright red.

anal. Bellis
not more
than traces
of cinchona
alkaloids

Dec 29 - slopes on north side
of Inebada del Inica,
E. of Colombia, Huila
l. sparsely wooded slope 4000 ft.

17663

64

Capparis

65

66

Zanthoxylum

vitelmo.

Jan 6, 1943 - Bogota Water towers,
San Cristobal, just south of
Bogota, Cundinamarca 2800 ft.

Brushy slopes, somewhat
grazed

67

Espallitia

68

Stevia

69

Eccremis coarctata (R. & P.) Benth.

70

wet place

71

Vicia?
base of root

"arallan"

- bush 3 m tall, fruit black.
- small tree 5 m tall, fls. white,
leaves finely pellucid, reticulate,
coriaceous
- small bushy tree, fls. yellow.
- small bushy tree or shrub,
leaves aromatic when broken,
fruit immature "tachuelo"

plant with resinous odor,
almost aculeate, leaves
in a large rosette, ~~at~~ stiff,
gray, inflorescences erect,
rays bright chrome yellow,
disk brownish yellow.

- shrub less than 1 m. tall, fls.
white

- solitary or very small
clumps, flowers lavender-blue,
petals, sepals mesocheile
pale lavender-pink, epichile
with body yellow, wings white.
- leaves fleshy, distichous.
- more or less prostrate, calyx
deep purple, corolla greenish, white.

- 19677 *Polygonum virginicum* HBK. det. M.C.F.
edge of rivulet
- 77 *Rubus*
- 78 *Gaultheria*
- 79 *Galium*
weed in edge of water works lawn.
- 80 *Castilleja*
in edge of brush and in water works lawn.
- 81 *Carex*
weed in water works lawn
- 82 *Colanum*
edge of rivulet
- 83 *Stevia*
- 84 *Rubus*
- 85 *Alchemilla*
road cut
- 86 *Vernonia*
roadside

erect, fls. pink

same arching forming dense tangles, plants sticky, glandular, fruit mostly immature, fls

- pale pink

flowers white, fruit

- white, fleshy

prostrate, fls + fruit green

calyx and bracts green, at base, scarlet distally, galea bright green, range along lower edge.

erect, fls. salmon pink.

large clump, culms almost erect.

spreading shrub 2 m. tall, fls.

- white, fruit immature.

prostrate to erect, fls. white

shrub 1 m. tall, very sticky,

- cany mbs pendent, fls pink.

low bush, 6-10 dm tall, tangled,

fls white - fruit black,

mostly immature.

no primocanes seen.

prostrate, fls. white

within, purplish without

prostrate to ascending

shrub 1 m. tall, infl. very sticky, involucre deep red-purple, fls. lavender-pink.

Jan. 10. - Foothills above
Bogota just north of mouth
of Quebrada el Bispo Cundinamarca
rocky ridge covered with brush. 2700 m.

19686 *Gnaphalium*

87 *Gnaphalium*

Ann. Mo. Bot. Gard. 55: 245, 29.19.1913

88 *Polypodium erubescens* var. *villosum* A.M.
steep slope, sheltered by
bushes.

89 *Muehlenbeckia tamnifolia* HBK.

90

abundant

91 *Smilax*
steep slope

92

steep slope, sheltered by bushes

93

steep slope, sheltered by bushes

94

Asplenium

steep slope, sheltered by bushes

95

steep slope, sheltered by bushes, rare

herb 2 m tall, growing up
through brush, branching
about half way up,
leaves green above.

low bushy, up to 1 m.
tall when in bushes, heads
slightly yellowish.

(sample for analysis)
fronds erect or somewhat
spreading, sori yellow.

low vine, tangled in
bushes, buds reddish,
flowers green with yellow
stamens.

shrub 2-4 m. tall, flowers
and racemes bright coral-
pink, mature fruit black,
fleshy (very few mature).

vine tangled in shrubs,
flowers green.

fronds erect

plant ascending, fls. fleshy,
fls. bright magenta

- 19696 *Rhynchospora*
steep slope
- 97 *Palicourea*
steep slope
- 98 *Bidens*
steep slope
- 99 *Castilleja*
steep slope
- 19700 *Palicourea*
steep slope
- 01 *Miconia*
- 02 *Hedyotis*
common
- 03 *Galium*
- 04
steep slope
- 05 *Vallea stipularis*
steep slope
- 06 *Befaria*

- scape ascending, arching,
plant ~~scandent~~ somewhat caespitose,
shrub 1 m. tall, inflorescences
purplish, corollas deep
red-purple.
- herb up to 2.5 m. tall, ~~erect~~,
rays bright yellow, reddish
at base, disk brownish
orange
- herb 1 m. tall, distal
part of upper bracts and
calyx vermillin, galea
green with lower edge
yellow.
- shrub 5 m. tall, leaves
glossy, stiff, paler beneath,
ripe fruit glossy, orange-yellow.
- shrub 2 m. tall, flowers
white.
- shrub 0.4 - 0.5 m. tall, flowers
white, corolla lobes purple
outside, especially toward
tips.
- vine-like, tangled in
bushes.
- erect, shrubby at base, 3 m. tall,
flowers deep magenta,
leaves fleshy, distichous,
center of lip orange, fruit
obovoid,
- shrub 2.5 m. tall, fls. rose,
- low shrub, flowers bright
rose, very sticky.

150

1943 - Colombia

19707 Berberis

08 *Lophocampylus columnaris*
common Det. R. M. S.

09
abundant on ledges and in crevices

Jan. 16 - hill about 1 km. south
of ^{San Antonio} Tortelaulax, 20 km. e. of Neiva
Huila

bushy vegetation on soil
formed of ~~sedimentary~~ decomposed
sedimentary rock.

10 *Diadia*
road cut

11 *Dactyloctenium aegyptium*

12 *Eupatorium*

13 *Borreria*
rather abundant

14

15 *Borreria*

16 *Ancistrum*

17

18

Cundinamarca - Huila 151

shrub about 1 m. tall,
leaves stiff, white beneath,
flowers orange-yellow.

shrub up to 2 m. tall,
corolla orange with green
lobes.

flowers greenish yellow,
with an unpleasant odor.
leaves fleshy

prostrate, stiff, ~~erect~~
much branched; flowers
pale lavender.

erect, flowers white
erect herb, up to 1 m.
tall, fls. purplish-white,
extensively branching

herb, flowers white
flowers white or very pale
lavender.

weakly ascending, fls. white,
tufts, rhizome short,
prostrate, fruiting spikes
ascending or erect.

shrub 1 m. tall, head yellow
lactiferous vine twining over bushes, fl. rich yellow,
reddish outside, fruit immatures, tomentose.

19719

20 *Lantana*
*rostrata*21 *Richardia*

Jan. 17 - Finca Cedrales, on Rio
Fotelaquilla above Vega
Larga.

Huila

rather weedy coffee plantation
without much shade, a
few trees along the top of the
cliff along the river. 1500m

22 *Blechnum*

rock wall between trail
and plantation

23 *Nephrolepis*

rock wall between trail
and plantation

24 *Ilexine*25 *Drymaria cordata*

in soil pocket on rock, no plant seen

erect herb, 1 m. tall, heads
whitish.
shrub less than 1 m. tall,
flowers violet, fruits
deeper purple, (fruits
from different plant than
flowering twigs).
prostrate, fls. very pale
lavender, involucre
whitish outside.

fronds are long, plane.

herb, main stem prostrate,
branches erect or ascending.
"contra fuego" ~~and~~ leaves
rubbed and crushed in
cold water for red irritated
skin resulting from kidney
trouble.
fruiting pedicels sticky.

19726 *Borreria*27 *Vitis*

in trees at edge of ravine

28 *Pteris*29 *Yucca*

edge of cliff

30 *Hamelia*

edge of cliff

31 *Cissampelos*

edge of cliff

32 *Galinsoga*

weed

33 *Clematis*34 *Triumfetta*35 *Morisonia*36 *Hamelia*

weed in plantation, common

37 *Oplismenus*

carpeting ground in plantation

38 *Salvia*

weed, common

- fls. white.

- woody vine, climbing in trees
shrub about 0.5 m. tall, much
branched.- small tree 5 m. tall, flowers
white.- shrub 2 m. tall, fls. orange
red, fruit dark red, shiny
when ripe. All trees examined
have leaves ternate- vine climbing in trees,
fruit green, leaves glaucous
beneath.

- disk yellow, rays white.

- vine climbing in trees
flowers white.- erect suffrutescent herb
almost 2 m. tall, branched
only above. flowers yellow- suffrutescent herb 1 m. tall,
fls. dark indigo, with yellow to
greenish brown keel. ~~yellow~~- tree 5-6 m. tall, flowers orange
red, fruit immature; all
plants examined have
ternate leaves.- prostrate, fruiting culms
ascending.

- flowers blue.

Jan. 18 Finca Guacalé, on Rio
Fortelacillas

Huila

wet mossy forest on steep
side of valley

19739

Cinchona pubescens Vahl
side of ravine above river

40

Cupressus

in pasture near house

41

Cinchona pubescens

side of ravine above river

42

Palicourea

side of ravine above river

43

Eupatorium

weed in pasture

44

Fruchsaia

side of ravine

45

Eupatorium

steep slope, edge of woods

small tree 7 m. tall 6-8 cm.
thick, leaves green beneath,
midrib and veins reddish,
sterile, stipules erect or
somewhat spreading, then
spreading much more
just before falling. "guiso"
large old tree 15 m. tall, 7 dm.
or more thick.

small slender tree 5 m.
tall, leaves roseate-coppery
beneath, stipules first
erect, then becoming red and
strongly spreading, sterile. "guiso"
small tree 5 m. tall, thyrses
yellow, flowers yellow,
fruit immature.

suffrutescent herb 1.5 m.
tall, somewhat virgately
branched, branches ascending,
fls. purple.

vine-like shrub climbing
in lower branches of trees,
flowers pendent, as many
as 6 or 8 in a cluster, ripe
fruit fleshy, purple.
suffrutescent herb 1 m. tall,
fls. white

19706

47 *Palicourea*48 *Lanicula*49 ~~Var. ...~~ Trail on steep slope
along trail on steep slope50 *Psychotria*51 *Polypodium*52 *Asplenium*

53

54 *Cinchona pubescens* Vahl55 *Palicourea*

56

57 *Psychotria*58 *Cinchona pubescens* Vahlsmall tree, somewhat aromatic
when broken, fruits mostly
immature.shrub 3 m. tall, scarcely
branched, fruits mostly
immature, blue when mature
strong odor when brokensuffrutescent herb about 1 m.
tall, fls. white.shrub 2.5 m. tall, fls. white.
fruit immature.climbing up trunk of
Cinchona tree.epiphytic in *Cinchona* tree
woody vine climbing in tops
of trees, flowers white.Anal. Bellis: Tree 18 m. tall, 2 dm. thick.
g+c 1.2% leaves with veins reddish
ci 0.2% beneath, stipules erect,
gri tr becoming reflexed. Bark
TC 1.4% whitish, oxidizing brown
(Bark sample). Tree sterile.slender shrub 3 m. tall,
fls. bright purple.semisclerulent shrub,
buds white, fruit large,
fleshy, white.slender shrub 4 m. tall,
fls. white, fruits immature.Anal. Bellis: Tree 10 m. tall, 1 dm. thick.
g+c tr leaves roseate-coppery beneath,
ci 0.4% stipules erect, then spreading
gri tr and becoming reddish (bark sample)
TC 0.4%

Jan. 12, 1943 - Finca Cedrales,
on Rio Fortelacilla

Huila

pasture on steep slope with
small patches of trees in
ravines and on steepest places.

19759

~~very bank~~ cut bank above trail

60 Dioscorea

in trees on steep slope

61 Stellaria

cut bank above trail

62 Dioscorea

in trees on slope

63 Tournefortia

open slope below trail

64 Bonania

65 Capsicum

66

Jan 13 - Valley of Rio Fortelacilla,
2-3 km. above Finca Cedrales,

Huila

pasture with moist forest
along stream.

67 Lolium

in very small ^{open} ravine

spreading

wine climbing in trees, staminate
flowers greenish, lvs. glossy
prostrate, fls. white

wine climbing in trees,
verticillate fls. greenish,
leaves glossy
low shrub, spreading,
fls. white.

fls. white.
small tree, ~~to 5 m.~~ 5 m.
tall, 8 cm. thick, fls. white,
fruit green.
small tree, fls. brownish.

suffrutescent herb 1.5 m. tall,
even stem covered with prickles,
fls. yellow, fruits variegated, green
and greenish white, immature.

- 19764 *Pilea*
bottom of tiny open ravine
- 69 *Pilea*
bottom of tiny open ravine
- 70 *Drymaria cordata*
moist open place
- 71 *Salvia*
along stream in wooded ravine
- 72 *Borreria*
cut bank above trail
- 73 *Salvia*
- 74 *Galium* (heliconium)
grassy bank
- 75 *Pteridium aquilinum*
abundant in pasture
- 76 *Duchesnea indica*
moist open places
- 77 *Lasiacis*
recently cut over land, grown
up to bushes and cane, 2-3 m.
tall.
- 78
open pasture
- 79
recently cut over land, grown up to
bushes and cane, 2-3 m. tall
- 80
recently cut over land, grown up
to bushes and cane, 2-3 m. tall.

stems fleshy

stems fleshy, succulent

91

92

93

94

95

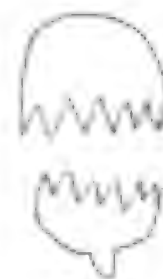
96

HISTORY AND DESCRIPTION (except American)

Braunthal, Julius.

Need Germany survive? By Julius Braunthal. With an introduction by Harold J. Laski. London, V. Gollancz Ltd, 1943.

256 p. 19^{cm}.



1. World war, 1939-
Title.
Library of Congress

—Peace. 2. World war, 1939-
DS16.B67 1943

—Germany.
43-14610

(3)

940.531

Dickinson Robert Eric, 1907-

shrub 1 m. tall, fls. orange.

thicket 1 m. tall, fls. yellow

woody vine, fruit immature

19768 *Pilea*

bottom of tiny open ravine

69 *Pilea*

bottom of tiny open ravine

70 *Drymaria cordata*

19829 ~~*Stethopogon dichromelus*~~
 19889 *Chorizanthe andelesta*

78

open pasture

79

recently cut over land grown up to
bushes and canes 2-3 m. tall

80

recently cut over land, grown up
to bushes and canes 2-3 m. tall.

- stems fleshy

- stems fleshy, pellucid.

- prostrate to ascending,
 pedicels sticky.
 - erect herb 1 m. tall. others
 up to 2 m., fls. scarlet.
 fls. white

- fls. crimson
 fruit orange

- rhizomes about 1 dm. or less
 underground, horizontal,
 extensively creeping
 many other kinds - very
 much larger and more complex.
 - prostrate, fls. yellow,
 petals very caducous, fruit
 red, fleshy, globose.
 - canes up to 2 m. tall, arching

- shrub, 2 m. tall, fls. orange.

- thicket 1 m. tall, fls. yellow.

- woody vine, fruits immature

19768 *Pilea*

bottom of tiny open ravine

1 69 *Pilea*

bottom of tiny open ravine

1 70 *Drymaria cordata*

moist open place

1 71 *Salvia*

along stream in wooded ravine

1 72 *Borreria*

cut bank above trail

1 73 *Salvia*1 74 *Galium* (helbium)

grassy bank

1 75 *Pteridium aquilinum*

abundant in pasture

AD 1 76 *Duchesnea indica*

moist open places

1 77 *Lasiacis*recently cut over land, grown
up to bushes and canes, 2-3 m.
tall.

1 78

open pasture

1 79

recently cut over land, grown up to
bushes and canes, 2-3 m. tall.

1 80

recently cut over land, grown up
to bushes and canes, 2-3 m. tall.

- stems fleshy

- stems fleshy, pedunc.

- prostrate to ascending,
pedicels sticky.- erect herb 1 m. tall, others
up to 2 m., fls. scarlet.

- fls. white

- fls. crimson

- fruit orange

- rhizomes about 1 dm. or less
underground, horizontal,
extensively creeping.
Many other fronds - very
much larger and more complex.
- prostrate, fls. yellow,
petals very caducous, fruit
red, fleshy, globose.
- canes up to 3 m. tall, arching

- shrub 1 m. tall, fls. orange.

- thicket 1 m. tall, fls. yellow.

- woody vine, fruits immature

Jan. 19, 1943 - La Cruz
Summit of Cordillera Ventana

Mota Huila
1000 ft

19781 Rain forest on ridge
Palicourea

82 Viola
mossy rocks beside trail

83 Bomarea
in low brush

Jan. 19, - Headwaters of
Rio Fortelacillas below
La Cruz.

Huila

rain forest on steep slope 7300 ft.
84 Begonia

85 Fuchsia
rare, only 2 plants seen

86 Centropogon

87 Fuchsia

88 Bomarea
common from summit down 1000 ft.

small tree, 6 m. tall, inflorescence
purple, pendent, fls. purple.
- prostrate, fls. lavender
with purple-black
stripes on lower petal.
- fls. coral red, leaves
glaucous beneath.
vine-like.

erect herb, 1.5 m. tall,
- flowers scarlet
- scandent shrub,
several m. long, apparently
epiphytic; fls. ~~scarlet~~
orange-vermillion.
- fruit immature.
- weald shrub 2-3 m. long,
fls. pale salmon with
yellowish corolla lobes,
anthers purplish
- erect herb, 1.5 m. tall, ovary
square in x section, corolla ^{+ calyx} scarlet
- erect or ascending leaves
glaucous beneath, fls. scarlet.

- 19789 *Nertera granadensis*
on mossy log.
90
91 Terrestrial, in moss, rare

Tall rain forest, mostly Quercus
7000 ft.

- 92 *Polypodium*
epiphytic
93 *Vaccinium*
94 *Palicourea*
(with W. R. Hilcockes)
95 *Nertera granadensis*
abundant, forming a carpet
along both sides of trail
96 *Ladenbergia macrocarpa*

Jan 19 - Rio Fortelaculla, above
Gucalos

wet forest on slope

Quila

5000 ft.

- 97 *Cinchona pubescens* Vahl
fairly common bet. 4000 & 5000 ft.

caespitose and pendent, berries
scarlet.
scape red, flowers scarlet.
erect herb 1.5 m. tall.
fls. red, purplish toward
tips.

pendent

shrub 2-3 m. tall.
shrub, infl. purple,
fls. yellow. fruit immature
prostrate, fruit scarlet.

Anal. Ballis:
no more than
traces of
cinchonine
alkaloids

tree 15 m tall, 2.5 dm. thick
bark sample) fruits ^{or} immature
and shattered. stipules calyptate

Anal. Ballis:
g+c. 1.0%
C 0.4%
g+c. 1.4%

15 m. tall, 7 dm. thick,
adaxial, beneath, red veined,
bark very thick below
bark sample), pinkish white
stipules at first green
and erect, then red and
withered

19792 *Viola*
mossy bank beside trail

99 *Liparura*

19800

epiphytic on *Cinchona pubescens*

01 *Hydrocotyle*

forming carpet along trail

02 *Ladenbergia*

Jan. 20 - Valley of Rio Fortelacillas
5 km. above Vega Larga,

Huila

woods on steep slope above
river

3000 m.

03 *Cosmibuena*

common for some distance along trail

Jan. 20 - Valley of Rio Fortelacillas
2 km. above Vega Larga

Huila 2500 m.

04

in thicket near river

prostrate, fls. pale lavender
with deep purple spot inside
lower petal.

small tree 5-6 m. tall, branches
drooping, fruits mostly
below leaves, pyriform,
flesh colored. plant
with ~~stems~~ odor somewhat
like lemon grass lvs.
very vigorous.

fruit green. lvs coriaceous, glossy

anal. Bellin:
no more
than traces
of cinchona
alkaloids.

tree 3 m. tall, $\frac{1}{8}$ dm. thick,
fls. white, jasmine-scented,
fleshy, fruit ^{both} immature and
shattered. Bark whitish
(Bark sample)

anal. Bellin:
no more
than traces
of cinchona
alkaloids.

15 m. tall, 7 dm. through,
~~bark~~ in bud only. bark
thick and juicy, peeling
fairly well. (bark sample)
(corolla lobes imbricate in bud)

weak shrub 2 m. tall, fls.
pink, anthers whitish-brown

Jan. 20 - Along Rio Fortalecidas below
Vega Larga

Chicklets near river

Huila
2500 ft.

19805

Jan. 20 - Rosa Blanca, just e. of Palacio,
w. side of valley of a small
affluent of Rio Fortalecidas
shaded bank above trail Huila

06 *Ancimia*

Jan. 20 - hill above Palacio,
~~just e.~~ e. of Rio Fortalecidas.

Huila
2000 ft.

17

dwarf forest

03

dense brush on rather moist
hillside, common

Jan. 20 - to hill w. of Palacio,
s. of Rio Fortalecidas.

Huila
2000 ft.

brushy hillside

09 *Ladenbergia magnifolia*

10 *Borreria*
bare ground along trail

11 *Declieuxia*
bare ground along trail

12 *Cassia*

ascendant shrub, orange fls.

shrub 3 m. tall, strongly
scented, somewhat like
lemon grass.

shrub 1 m. tall, fls. rose pink

clump of stump sprouts about
4 m. tall.

stems ascending, fls. violet
or deep lavender.

fls. white.

small bushes with flat tops, branchlets
more or less in one plane, fls. large, bright yellow.

19813

14 *Liparums*Jan. 20 hill N of San Antonio, ^{Fortaleza}

Humbly

3000 ft.

bushy hillside

15 *Randia*16 *Andropogon*

vertical earth bank above streamlet

17

Jan. 20 - hill S. of ^{San Antonio} Fortaleza.

S. of S. of San Antonio. 20 km S of Iquitos

Humbly

3000 ft.

weedy thickets, second growth near road

18

19 *Lilium*20 *Dichrocnemum*

shaded bank along old trail

21 *Croton*

along old overgrown trail

22 *Elephantopus*

along old overgrown trail

shrub 1.5 m. tall, fls. white.
 shrub, m. tall, somewhat
 lemon-grass scented, fruits
 pyriform, flesh-pale, immature

erect shrub 2 m. tall, fls. white.
 rosettes

fruiting culms erect.

aromatic shrub, fls. purple, others
 seen small trees
 suffrutescent herb 1.5 m. tall,
 fls. very small narrow.
 small tufts, involucre white
 at base.
 others seen later, much larger.

fls. pale lavender, almost
 white.

Jan. 22 - Huila 470 m.
roadside and cultivated places in
low ground.

- 19823 *Momordica charantia*
abundant weed

20 *Corchorus*

Jan. 24 - Rio Fortalacillas below
Vega Larga, above Palacio

Huila

2500 ft

- 29 *Ladenbergia magnifolia*
steep ravine above river, thin woods.

Jan. 25 - San Antonio Fortalacillas,
Huila

1800 ft

climber in tree in back yard
of house

vine climbing over fences, bushes,
etc. fls. yellow, fruit orange-
red when mature, splitting
into 3 fleshy valves, seed of
seed red, main stem longitudi-
nally corded-striate, somewhat
flattened. "subi coli" or
"yerba de culebra" (because
snakes supposedly eat
the fruit) (sample sent to
Washington)

suffrutescent herb, fls.
yellow, reddish toward
apex, "escobax real", leaves
rubbed up and eaten for
dysentery.

tree 6 m. tall, a grown stump
sprout, 10 cm. thick, fls.
white, fragrant, ♀

vine, fls. white, fruit pale
green, inflated. "sardinato"

Jan. 25 - Hill s. of San Antonio
 Fortalacillas, s. of Rio San Antonio
 20 km. e. of Neiva

Hills
 3000 ft

second growth woods. broken
 by bushy places and cultivated
 plots.

19827 *Gonzalagunia*

28 *Brenea*

recently disturbed roadside, otherwise
 bare ground.

29 *Hydrocotyle*

small patch on edge of road-cut

30 *Hypoxis*

single plant in wet grassy place

31 *Quadua*

wooded ravine

This is the common structural
 or timber bamboo in this part
 of Colombia. Its uses are practically
 innumerable. It is one of the
 main building materials in
 poorer houses, forming the
 cross lacing in the mud-and-
 wattle type.

shrub 2 m. tall, fls. white.
 stems purple-black,
 main one erect, fls. white.

prostrate, forming a close mat
 by strongly rooting at nodes,
 fls. greenish-white.

fl. yellow

canes ^{green} up to 10 m. tall, 15 cm.
 thick, ^{very} strong and woody,
^{internodes up to 10 cm. long.} tops arching, bushy, stiff,
 pointed divaricate buds arising
 at lower nodes, elongating into
 stiff, branched, vine-like branches
 up to several meters long,
 very spiny, forming dangerous
 tangles, further up the culm
 these become leafy branches.
 The culms arise singly at
 intervals of 1 m. t., apparently
 from a branched running rhizome,
 never in clumps; specimens
 all from lower branches, leafy
 and fruiting ones arising about
 3 m. up, sheaths from 4th node
 from ground imbricate, bases
 on each side overlapping, $1\frac{1}{2}$ times around culm.

19832 *Eugenia*

rocky brushy slope, abundant,
characterizing a zone 200 m. or
more in altitude.

33

common weed in grazed places

34

common weed in grazed places

35

Ladenbergia magnipolia

isolated trees in remnants
of forest.

36

Chiococca alba

remnants of forest

37

Jan. 25 - drainage of ^{Rio} quebrada
Las Ceibas, s.w. of San Antonio
Fortalacillas, road to Neiva about
Platanillo. 85

Huila

2000 ft.

grassy or over-grazed and brushy
hillsides.

37

38 *Anemone*

cut bank above road - rocky earth

39 *Canavallia*

~~very common~~ common

shrub 2 m. tall, leaves
deflexed in one direction
(downward) from the branchlet,
ripe fruits black (very
few ripe).

herb 1 m. tall or less, fls.

purple
branched suffrutescent herb,
fls. large, butter-yellow
with maroon center.

tree 10 m. tall, 3 dm. thick,
few flowers left, these white.

small tree with weak
branches, flo. cream-color,
pointing downward, fruits
strongly compressed.

erect herb 1 m. or more tall, fls.
bright lemon yellow.

erect, arching shrub, leaves
silvery, flowers violet-purple.

19340

Gleichenia

cut bank above road

41

Decasium fruticosum

disturbed places

42

banks of road cut

43

fls. white

prostrate, hanging over
 edge of cut, fls. white.
 strong-scented, spreading
 almost prostrate, fls. orange.

Coll. Rafael Hurtado L.

s.n. Cinchona pubescens
above Timba, near Cerro Haya
Valle

s.n. Poeguena ^{Mun. Inga}
Santa Rosa. ~~Departamento de Cauca~~

s.n. ¹⁹⁴³
Los Cristales, region of Cerro San Pedro
Cord. Occ. Cauca

s.n. Eleocharis
above Diviso Chicoas, on way to
Boqueron, region of Cerro San Pedro,
Cord. Occ. Cauca.

s.n. Rondellia
Los Cristales, reg. San Pedro, Cauca

s.n. ¹⁹⁴³
parte alta, serrania de San Pedro
a San Alfonso, Cord. Occ. Cauca.
"bejuco de Buenos Aires"

s.n. ^{Quedado. Col. Del.} Ladenbergia magnipolia
Quebradas Coloradas, loma de la
Mesa, Cuchillo de Montalvo,
Rio Sajandi
muy abundante

Cordillera Central, e. slope.
Tierra adentro - Inga -
San Andres - Lame - Mosoco -
Paramo de Moras, Cauca.
June 1943

s.n. ¹⁹⁴³
Inga

2
legovia, Mun. Inga

s.n. ¹⁹⁴³
1 legovia
"flor rosada, Tallo 1-3 m. alto"

3. ¹⁹⁴³ ~~2~~ Symplocanthus
laminas toward Paramo de las Moras from Inga
"flor rosada, lavelos crepos"

s.n. Brunellia
Alto de Mosoco

3. ¹⁹⁴³ ~~2~~ Dioscorea
Lame
"raiz comestible" "Tupinambú"

s.n. ¹⁹⁴³
1. legovia

2 Lanth.

4
legovia ¹⁹⁴³

- 5 *Condaminea corymbosa*
Segovia
- 6 *Ficus*
Segovia, near the river
- 7 *Ladenbergia macrocarpa*
Inga
- 8
Segovia
- 9
Segovia
- 10 *Mimosa*
Segovia
- 12 *Ladenbergia*
Bella Vista, San Juan, Pinar
- 13
Alto San Jose, San Juan
- 14 *Trichomanes*
Alto San Jose, San Juan
- 15
San Juan
- 16
Annona San Juan

- 17 *Ladenbergia*
San Juan
- 18
Annona de la Piedad, San Juan
- 19
Bella Vista, San Juan
- 20
San Juan
- 21
San Juan
Epodea munita near the river
- 23
San Juan
- 24 *Gouardia*
cane de Apollonia, San Juan
Alto de San Andres
- 25
~~Pentstemon~~, above San Andres.
San Juan
- 26
cane de Apollonia, San Juan
Alto de San Andres

27 Alto de Fumbreaburgue

27a Fumbreaburgue

28 Fumbreaburgue (near San Andres)

29 ~~Puerto~~ Puente Natural de Piedra
Lame

30 Polypodium
same Lame

31 same Lame

32 same Lame

33 Puente Lame

34 Puente Lame

35 Puente same

37 Passiflora
Puente same

Tierra Adentro, Cauca

Las Minas, bet. Liloa & Inza

~~Dischidia~~ 2. of Paramo Las Delicias

201 Palicourea
fls. blue & white

202

203 Dimeris

204

205 Ladenbergia

206 Psychotria

207

208

vine-like bush

209

bush

210 Ladenbergia
tree 17 cm. diam.

211

tree 16 m. tall, 20 cm. thick

212 tree

213 Trichomanes

214 Lobelia

215

shade

Rio Ullucos, road out of Las
Naranjos, above Inga

216 Cinchona pubescens

Las Naranjos, above Inga

217 Palicourea

"fl. blue with yellow petals"

Rio Ullucos, road from Las Naranjos to Inga

218 Palicourea

219 discarded

San Julian, above Tierra Blanca

220 Ladenbergia

221 Ladenbergia

Tierras Blancas

+ Rio Negro

222 Cinchona pubescens

Buena Vista n. above Tierra Blanca

223 Passiflora

224 Cinchona pubescens

Montañas de Agua Bonita

Tierras Blancas

225 Guettarda

Buena Vista, above Tierra Blanca

226 Cinchona

227 Ficus

"uva"

La Granja, Inga

228 Lappium

"Caulis nanteguilla"

Buena Vista alt. 2200 m.

229 Equisetum

D. a. Calavera & other editors

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